BW TRUSTS' MAY 22, 2006
RESPONSE TO CERCLA 104(e) INFORMATION REQUEST – NHOU

CONTINUED – VOLUME 4 OF 4

STATE OF CALIFORNIA—ENVIRONMENTAL PROTECTION AGENCY PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
FAX (213) 266-7600

June 14, 1996

David L. Lokken
President & Chief Executive Officer
HAWKER PACIFIC INCORPORATED
11310 Sherman Way
Sun Valley, CA 91352

REPORT REVIEW - HAWKER PACIFIC, INC., 11310 SHERMAN WAY, SUN VALLEY, CA (FILE No. 111.0436)

Board staff have received the report "Site Investigations: Evaluation of PCE Impacts to Shallow Soils", prepared by your consultant, Geraghty & Miller, Inc., dated March 25, 1996 (received March 27, 1996). This report contains results of the latest assessment work conducted at your facility. Upon review of the subject report, previous assessment work and other information Board staff have the following comments with respect to the Well Investigation Program:

1. The subject facility has been used for maintenance of aircraft components (primarily landing gears) since 1987. Chemicals used at the site include 1,1,1-TCA, Ketone, Toluene, Turbine Oil and Industrial Oil. During our initial inspection on August 31, 1988, Board staff noted numerous potential sources of soil and ground water contamination including the Industrial Waste Clarifier, Above Ground 1,1,1-TCA Tank Area, Cooling Tower, and Chemical/Waste storage Area.

2. In December, 1988, a subsurface investigation was conducted at the subject facility consisting of drilling and sampling three boreholes to a maximum depth of 20' bgs at potential sources of liquid wastes. Laboratory analysis of the soil matrix samples detected Methylene Chloride at 16 µg/kg (at bgs) and 7 µg/kg (at 10' bgs).

3. In June, 1989, your representatives submitted the results of assessment work for soil contamination associated with a 200 gallon waste oil underground storage tank (UST) that was not performed under Board staff guidance. Laboratory analysis of soil matrix samples collected during this work detected maximum concentrations of 38,637 µg/kg TRPH at 1' bgs (36 µg/kg at 20' bgs), 7,300 µg/kg TPH-d at 5' bgs (88 µg/kg at 20' bgs) 290 µg/kg µg/kg 1,1,1-TCA at 5' bgs, 260 µg/kg TCE at 5' bgs, 550,000 µg/kg Toluene at 5' bgs, 555,000 µg/kg PCE at 5' bgs, 584 µg/kg Total Xylenes at 5' bgs and lesser levels of other VOCs. Based on the soil matrix data submitted, the contamination does not extend below 40' bgs. The sediments penetrated to a maximum drilled depth of 90' bgs were

predominantly sand and gravel. The water table is estimated to be in excess of 200' bgs.

4. In August, 1990, the waste oil UST was removed. Confirmation soil matrix samples in the bottom of the excavation pit contained maximum concentrations of 250 µg/kg TPH and 18 µg/kg PCE. Reportedly, contaminated soil excavated from the pit was backfilled without treatment into the pit after tank removal. This work was conducted under the guidance of the Los Angeles Fire Department. The site was subsequently transferred to the Regional Board.

5. During a phase of assessment conducted in the UST area in 1992, soil matrix samples were collected and analyzed from four boreholes drilled to a maximum depth of 25' bgs. Laboratory results of these samples reported maximum concentrations of 31 µg/kg PCE at 10' bgs (ND at 20' bgs).

6. Assessment conducted in the UST area in January, 1994, detected maximum concentrations of 188 ppb PCE at 6.5' bgs using a portable gas chromatograph. PCE was detected in soil vapor samples sent to a fixed laboratory at a level of 39 µg/l at 80' bgs, the maximum drilled depth.

Due to inadequate agency oversight, inappropriate sampling techniques and insufficient QA/QC information, additional soil vapor samples must be collected in the former waste oil UST area to confirm the vertical extent of VOC contamination. The work must be performed in accordance with the enclosed "REQUIREMENTS FOR ACTIVE SOIL GAS SURVEY". Also, at least two shallow soil matrix samples must be collected in the fill material in the former excavation pit and analyzed for TRPH, BTEX and VOCs to confirm that concentrations in this material does not exceed allowable limits. **Three** copies of a work plan for the multi-depth soil gas probe installations and shallow borings in the former excavation pit must be received by **July 30, 1996**. If you have any questions please contact Walter Salas at (213) 266-7542, and address all correspondence to his attention. Your cooperation in completing the required assessment work at this facility is appreciated.

ERIC NUPEN, R.G.
Senior Engineering Geologist

Enclosure
cc: David Seter, USEPA Region IX, San Francisco
Dr. Lorne G. Everett, Geraghty & Miller, Inc.
Stephen J. Cullen, Geraghty & Miller, Inc.
Aaron Rosen, Attorney at Law
Norman B. Berger, Varga Berger Ledsky & Hayes

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PHASE II SITE INVESTIGATION REPORT

Hawker Pacific, Inc. Facility
11310 Sherman Way
Sun Valley, California 91352

November 1996

Prepared for

Aaron Rosen, Esq.
9606 So. Santa Monica Blvd., Suite 200
Beverly Hills, CA 90210

Prepared by

Geraghty & Miller, Inc.
3700 State Street, Suite 350
Santa Barbara, CA 93105
(805) 687-7559

GERAGHTY
& MILLER, INC.
Environmental Services

a **heidemij** company

November 18, 1996
SB0042.001.002

Mr. Walter Salas
California Environmental Protection Agency
Regional Water Quality Control Board, Los Angeles Region
101 Centre Park Drive
Monterey Park, California 91754

Subject: Phase II Site Investigation Report
Hawker Pacific Inc., facility
11310 Sherman Way
Sun Valley, California

Dear Mr. Salas:

Geraghty & Miller, Inc. (Geraghty & Miller) is pleased to present this report of the Phase II Site Investigation on behalf of Wagner & Basinger, who are the owners of the Hawker Pacific, Inc. property located at 11310 Sherman Way in Sun Valley, California. Wagner & Basinger are represented by Aaron Rosen, Esq. This letter report presents the results of an executed work plan previously submitted to and approved by the Regional Water Quality Control Board, Los Angeles Region (CRWQCB) by letter dated July 29, 1996.

Please contact me at (805) 687-7559, or Mr. Rosen at (310) 777-0374, with any questions or comments you may have. Please direct your written response to this report to Mr. Rosen at 9606 So. Santa Monica Blvd., Suite 200, Beverly Hills, CA 90210 with a copy to me at the letterhead address.

Very Truly Yours,

Stephen J. Cullen, Ph.D.
Hydrologist/Soil Scientist

enclosures

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PHASE II SITE INVESTIGATION REPORT

Hawker Pacific, Inc. Facility
11310 Sherman Way
Sun Valley, California 91352

November 1996

Prepared for

Aaron Rosen, Esq.
9606 So. Santa Monica Blvd., Suite 200
Beverly Hills, CA 90210

Prepared by

Geraghty & Miller, Inc.
3700 State Street, Suite 350
Santa Barbara, CA 93105
(805) 687-7559

CONTENTS

APPENDICES

CERTIFICATION

The material and data in this report were prepared by the following individuals under the supervision and direction of the licensed professional listed below consistent with generally accepted practices of environmental professionals.

Geraghty & Miller, Inc.

Stephen J. Cullen, Ph.D.
Hydrologist/Soil Scientist

Barry R. Keller, Ph.D.
Registered Geologist, No. 4460

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PHASE II SITE INVESTIGATION REPORT
HAWKER PACIFIC, INC. FACILITY
SUN VALLEY, CALIFORNIA

EXECUTIVE SUMMARY

The site investigation described in this report is a follow-up to investigations previously conducted at the Hawker Pacific, Inc. facility at 11310 Sherman Way, Sun Valley, CA (the "Site"), as reported by Geraghty & Miller, Inc. (Geraghty & Miller) in a report dated March 25, 1996 and entitled Site Investigations: Evaluation of PCE Impacts to Shallow Soils. The primary purpose of this investigation was to confirm the limited extent of Site tetrachloroethylene (PCE) soil impacts as identified in the above-mentioned report. The methodologies utilized in this investigation were executed in accordance with applicable California Regional Water Quality Control Board (CRWQCB) guidance documents and correspondence.

Site data indicates that petroleum hydrocarbon concentrations in the tank excavation area rapidly diminish with depth. Sample results reported herein are consistent with the findings of previously reported investigations. Taken together, the results of this and previous Site investigation sample results indicate that petroleum hydrocarbons have not impacted soils in the tank excavation area below 40 feet below ground surface (bgs).

Two types of samples indicate the soil PCE concentrations are below the appropriate cleanup level. Soil matrix PCE concentrations, calculated from site soil gas PCE concentrations, are lower than the depth-specific calculated PCE soil cleanup level. Soil matrix samples collected at depths shallower than the soil gas samples also had PCE concentrations less than the calculated PCE soil cleanup levels. The deepest soil gas sample collected in this sampling event yielded nondetect for all compounds in the soil gas sample analytic suite, in particular PCE.

Based on the sampling data, and application of the CRWQCB guidance (Interim Guidance for Remediation of VOC Impacted Sites, January 1995; the "Guidance") to this Site, it is concluded that Site soil gas and soil matrix PCE concentrations are below levels which require

cleanup. Geraghty & Miller recommends that the Hawker Pacific facility be removed from the list of potential dischargers and that no further action be required by Wagner and Basinger in defining or remediating previously-suspected PCE impacts to groundwater.

PHASE II SITE INVESTIGATION REPORT
HAWKER PACIFIC, INC. FACILITY
SUN VALLEY, CALIFORNIA

1.0 INTRODUCTION

Geraghty & Miller has prepared this report of the Phase II Site Investigation on behalf of Wagner & Basinger, owners of the Hawker Pacific, Inc. property on which the Site is located.

This report presents the results of an executed work plan (the "Work Plan") previously submitted to and approved by the CRWQCB by letter dated July 29, 1996. The Work Plan was developed in response to CRWQCB correspondence dated June 14, 1996, in which additional investigation was requested. In that correspondence, the CRWQCB provided review comments to Geraghty & Miller's March 25, 1996 report.

Specifically, the CRWQCB requested that the following tests be completed: 1) additional soil vapor sampling in the former waste oil UST area to confirm the vertical extent of volatile organic compound (VOC) contamination; and 2) two additional soil samples from the fill materials in the former excavation pit be taken. Subsequent to submission of the Work Plan, the CRWQCB requested, in a letter dated August 12, 1996, that the Work Plan be modified to replace the proposed soil gas analysis method TO-14 with an analytical method in accordance with their Requirements for Active Soil Gas Investigation. The Work Plan was subsequently modified and executed in accordance with the August 12, 1996 CRWQCB comments.

Relevant correspondence related to the development of this scope of work, and the Work Plan, are presented in Appendix C. Figures which illustrate the Site location, Site layout, and the specific location of the former underground storage tank in question are presented in Geraghty & Miller's more extensive report dated March 25, 1996 and are not repeated herein.

2.0 BACKGROUND

By letter dated May 6, 1988, the CRWQCB requested that Hawker Pacific complete a Mandatory Chemical Use Questionnaire because, according to the CRWQCB, the Site was geographically within an area showing groundwater impact with VOCs. Hawker Pacific responded to the Questionnaire in October 1988.

On August 31, 1988, the CRWQCB inspected the Site. By letter dated September 6, 1988, the CRWQCB requested a work plan for conducting a subsurface investigation at certain areas of the Site chosen by the CRWQCB. The purpose of the work plan was to determine whether the soil at the Site was impacted by VOCs. From October 25, 1988 through November 17, 1989, work plans for three phases of work were submitted to and approved by the CRWQCB. The soil sampling results specified in the third work plan were submitted to the CRWQCB by letter dated January 11, 1990. The on-Site areas investigated were near the chemical storage sheds, the aboveground trichloroethane tank, the aboveground waste oil tank and flammable liquid shed, two private sewage disposal systems, and the industrial waste clarifier. After reviewing the soil sampling results from all of these areas, the CRWQCB notified Hawker Pacific by letter dated February 21, 1990, that no further action was necessary at the Site.

By letter dated June 20, 1989, Hawker Pacific notified the CRWQCB that Hawker Pacific had discovered a brass standpipe protruding from the pavement in the alley between Buildings 1 and 2. Hawker Pacific discovered the standpipe after removing a drum storage rack from this area. Prior to Hawker Pacific's tenure at the Site, this area had been used to store unused oil. Investigation of the area lead to the discovery of a small, approximately 280 gallon abandoned underground tank and sump. With representatives of the LACFD and the CRWQCB present, the tank and sump were removed on August 19, 1991 (Law Environmental, 1991). Soil sampling activities by two environmental firms indicated the presence of PCE in the subsurface. Based on the data

generated by those investigations, as well as findings by the CRWQCB, concerns about PCE-impacted soil have been confined to the area between Building Nos. 1 and 2.

Law Environmental subsequently installed a vapor extraction system (VES) to remediate VOCs in the tank/sump area. In October 1995, Hawker Pacific received a letter from the CRWQCB requesting implementation of the VES.

Geraghty & Miller conducted a subsequent drilling and sampling program designed to measure the worst-case distribution of PCE in the Site subsurface. Boring G-1 was drilled through the location of the former UST, G-2 was drilled as close as possible to the location of the former sump, and G-3 was drilled about 10 feet east of G-2 to address the eastern lateral extent of any soil impact. A total of 18 soil samples were collected and analyzed for PCE. At the areal center of the problem area, as defined by Law Environmental, eight samples were collected and analyzed at depths as deep as 82 feet bgs. Results of the Geraghty & Miller drilling and soil sampling program, with continuous core borings located in the locations of the former tank and sump, yielded no detectable concentrations of PCE in soil at any depth in any of three borings. Results of a simultaneously-conducted soil gas investigation by Geraghty & Miller indicated that PCE soil gas impacts were minimal.

In its March 25, 1996 report to the CRWQCB summarizing and interpreting the results of the previous investigations, Geraghty & Miller concluded that historic PCE impacts to the Site subsurface are localized and minimal; that the distribution, magnitude and makeup of the constituents detected in the Site subsurface are consistent with a nonsystematic release of a relatively small mass of PCE released in association with a petroleum hydrocarbon liquid (likely cutting oil); and that the data is not indicative of a quantifiable or significant potential for impact to underlying groundwater. Using the Guidance, Geraghty & Miller found that Site soil concentrations of PCE were below Guidance-calculated cleanup levels and do not represent a threat to groundwater. Geraghty & Miller recommended to CRWQCB that the vapor extraction system not be

implemented and that no further action was required in the area between Building Nos. 1 and 2 at the Site.

3.0 RESULTS

3.1 SOIL MATRIX SAMPLING RESULTS

In accordance with the Work Plan, soil matrix samples were collected from the fill materials in the former excavation pit area. The samples were analyzed for VOCs using EPA Methods 8010/8020 and for Total Recoverable Petroleum Hydrocarbons (TRPH) using EPA Method 418.1 by Quanterra Environmental Services.

A summary of the results of the chemical analysis of those samples are shown in Table 1 below.

Table 1. Summary of results of chemical analysis of soil matrix samples collected September 6, 1996.

Sample No.	Depth (ft bgs)	PCE (ug/kg)	Reporting Limit (ug/kg)	TRPH (mg/kg)	Reporting Limit (mg/kg)
G4-5	5	14	2	2000	500
G5-7	7	75	10	170	50

ft bgs = feet below ground surface

ug/kg = micrograms per kilogram of soil

PCE = tetrachloroethylene

TRPH = total recoverable petroleum hydrocarbons (Method 418.1)

No other specific target compounds were detected beyond those shown in Table 1. Detailed analytical laboratory reports for the collected soil samples are presented an Appendix A.

The two soil samples were analyzed for TRPH as directed in CRWQCB correspondence dated June 14, 1996. Method 418.1 measures the methylene group carbon-hydrogen bonds in a sample by infrared (IR) spectroscopy. The sample is extracted

by Freon 113 and the extract is treated by a silica gel cleanup to remove biogenic materials that are a source of false positives. This removal may not be 100% effective. The remaining mass is subjected to IR light which is absorbed by carbon-hydrogen bonds at a selected wavelength. A detector measures the amount of energy lost as the IR light passes through the sample. The quantitation is performed by comparing the reduced amount of light at the selected wavelength to a reference standard. Besides incomplete removal of biogenic material by the silica gel, another significant source of positive interference is the possible scattering of IR light caused by particulates (turbidity) in the sample. This method is non-specific regarding petroleum hydrocarbon constituents and is typically used as a coarse screen for heavier hydrocarbons. Therefore, TRPH values derived from the 418.1 method are difficult to confidently and accurately interpret.

TRPH concentrations in the samples reported herein diminished over ten-fold between the five-foot bgs sample (2,000 mg/kg) depth and the seven-foot bgs sample (170 mg/kg) depth. Given the above-indicated difficulties associated with interpretation of TRPH results, it can be concluded that the currently reported results are consistent with previous sampling results obtained in the tank excavation area. As previously reported by Geraghty & Miller (1996) and Law Environmental (1990), petroleum hydrocarbon concentrations rapidly diminish with depth. In a report of sampling results in 1990, Law Environmental reported nondetect results for total petroleum hydrocarbons as diesel (TPHd) at all depths sampled down to 40 feet bgs. Low levels of toluene were detected down to 30 feet bgs; toluene was nondetect in the 40 feet bgs sample. In the most recent sampling event reported herein, speciated benzene, toluene, ethylbenzene, and xylenes were nondetect at both depths sampled, using EPA method 8020.

Methyl tertiary butyl ether (MTBE) was not analyzed at this Site. The underground storage tank excavated and removed from this Site was discovered and reported to the CRWQCB in 1989 and taken out of service some unknown period of time before. Since MTBE usage in gasoline products began after this time period, MTBE is not a constituent of concern at this Site.

3.2 SOIL GAS SAMPLING RESULTS

Geraghty & Miller secured the services of a CRWQCB-approved soil gas sampling contractor, Environmental Support Technologies, to collect and analyze soil gas samples. Soil gas samples were collected within the former waste oil underground storage tank (UST) area to determine the vertical extent of VOC contamination as requested in the CRWQCB correspondence dated June 14, 1996. Soil gas samples were collected at two depths, 10 and 20 feet below ground surface (bgs), utilizing the procedures outlined in the CRWQCB document entitled, Interim Guidance for Active Soil Gas Investigation, dated March 14, 1996. The procedures, quality control measures and results, and detailed analytic reporting of soil gas sampling at the Site are presented in Appendix B. A summary of the results of the chemical analysis of the soil gas samples are shown in Table 2 below.

Table 2. Summary of results of chemical analysis of soil gas samples collected September 6, 1996.

Probe Number	Probe Depth (ft bgs)	PCE (ug/L)
SG1-10	10	102
SG1-20	20	ND<1

ft bgs = feet below ground surface

ug/L = micrograms per liter of soil gas

ND = nondetect

Note: values shown are the highest detected within calibration range.

No other target compounds were detected beyond those shown in Table 2. Detailed analytical laboratory reports for the collected soil gas samples are presented in Appendix B.

3.3 SOIL ORGANIC CARBON FRACTION

A range of values for fraction of organic carbon (foc) were presented in the Guidance (page A-6) from a wide variety of locations in the Los Angeles area. This parameter is used in the Guidance to calculate an equivalent VOC soil matrix concentration based on a Site-measured VOC soil gas concentration. The variability of the foc values in the presented database is great and this is indicated by the relatively large value of the coefficient of variation (CV) of 131.2%. The CV is defined as the standard deviation expressed as a percent of the mean value. Because of the high variability in the region-wide values, it was deemed appropriate to measure a Site-specific value for foc rather than use a value from the document.

Soil matrix sample number G5-7 was analyzed to determine a Site-specific value for foc. EPA Method 9060 modified for soils was used to determine foc at a California-certified analytic laboratory using a carbonaceous analyzer to convert the organic carbon in a sample to CO_2. The CO_2 formed is then either measured directly by an infrared detector or converted to methane and measured by a flame ionization detector. The amount measured is directly proportional to the concentration of carbonaceous material in the sample.

The laboratory analysis indicated an foc of .00176 for the sample taken at G5-7. G5-7 is the Site location and depth from which the highest sample soil gas concentration of PCE was detected. Detailed analytic results for the foc analysis are presented in Appendix A.

3.4 EVALUATION OF SOIL CLEANUP LEVELS: APPLICATION OF THE CRWQCB VOC CLEANUP EVALUATION GUIDANCE TO THE SITE

The methods used to follow and apply the Guidance to the Site were detailed by Geraghty & Miller in their report, entitled Site Investigations: Evaluation of PCE Impacts to Shallow Soils, dated March 25, 1996. The same six-step methodology was used in this

report in order to closely follow the Guidance and to compare Site soil PCE concentrations with cleanup levels calculated in the March 25, 1996 report.

Step One involved calculating an equivalent PCE soil matrix concentration based on PCE soil gas concentrations measured at the Site. Table 3 below shows the data input parameters and results of the partitioning calculation to determine the equivalent PCE soil matrix concentration for the Site PCE soil gas sampling results.

Table 3. Conversion of PCE soil gas concentrations to total PCE soil concentrations for soil gas results obtained at the Hawker Pacific facility between Building Nos. 1 and 2, September 6, 1996, based on the equation:
$C_t = C_g * (\theta_w + (n-\theta_w) * K_H + \rho_b * f_{oc} * K_{oc}) / (\rho_b * K_H)$

Soil Gas Sample/ Depth	PCE C_g µg/L	θ_w (--)	n (--)	PCE K_H (--)	ρ_b (g/cm^3)	f_{oc} (g/g)	PCE Koc (ml/g)	PCE C_t (µg/kg)
SG-1@10 ft	102	.0405	.35	.956	1.72	.00176	373	90.9
SG-1@20 ft	ND<1	.0405	.35	.956	1.72	.00176	373	<.89

C_g = measured soil PCE gas concentration.

θ_w = soil water content (site measured value, Geraghty & Miller, March 25, 1996).

n = soil porosity (site measured value, Geraghty & Miller, March 25, 1996).

K_H = dimensionless Henry's Law Constant for PCE (the Guidance, p. A-8).

ρ_b = soil bulk density (site measured value, Geraghty & Miller, March 25, 1996).

f_{oc} = soil fractional organic carbon content (measured value).

Koc = Organic Carbon Partition Coefficient for PCE (maximum value cited from USEPA, Office of Solid Waste and Emergency Response, EPA/540/R-95/128, Soil Screening Guidance: Technical Background Document, May 1996).

C_t = calculated total soil PCE concentration.

The soil gas sample (SG-1 at 10 feet bgs) with the highest measured PCE concentration (102 ug/L) resulted in a calculated total soil matrix concentration of 90.9 ug/kg.

Step Two consisted of evaluating the depth to groundwater at the Site. Based on measurements taken adjacent to the Site, as indicated in the March 25, 1996 report, the depth to groundwater at the Site is interpreted to be 237.5 feet bgs.

Step Three was an evaluation of the lithologic makeup of the geologic profile as described in the Guidance. Based on an evaluation of the Site geologic logs, as presented in the March 25, 1996 report, the following proportions were assigned, for the entire geologic profile between ground surface and the water table, using the lithologic categories in the Guidance for evaluating VOC cleanup levels in Site soils:

Gravels - 29%
Sand - 54%
Silt - 17%
Clay - 0%

The above-described methodology of determining Site lithologic proportions was then utilized at each specific depth of interest. For this analysis, the only sample depth at which detectable soil gas PCE concentrations were measured (SG1-10) was used as the sample depth of interest. All other samples with detectable concentrations of PCE, both in soil matrix and soil gas, were from shallower depth and with lower measured or equivalently-calculated soil matrix concentrations. Thus, if sample SG1-10 compared favorably to cleanup levels calculated using the Guidance, all other samples would also compare even more favorably.

The distance between the depth of sample SG1-10 and the groundwater table is calculated to be 227.5 feet. The following lithologic proportions were determined to be in the depth interval between the sample SG1-10 depth and the groundwater table. Notice that the small difference in percentages shown reflects deletion of the upper 10 feet of fill sand from the geologic profile.

Gravels - 30.6%
Sand - 51.8%
Silt - 17.6%
Clay - 0.0%

Step Four consisted of applying the methodology for calculating depth-specific composite attenuation factors as described in the Guidance. The specific methods, specified in the Guidance and used for this application with respect to Site data, are described in the March 25, 1996 report. Based on a depth interval of 227.5 feet the following total attenuation factor (AF) is calculated:

$AF_{227.5}$ = (Gravel AF * Gravel %) + (Sand AF * Sand %) + (Silt AF * Silt %) + (Clay AF * Clay %)

$AF_{227.5}$ = (13 * 30.6 %) + (26 * 51.8 %) + (51 * 17.6 %) + (255 * 0 %)

$AF_{227.5}$ = 26.4

Step Five consisted of calculating the Site-specific, depth-specific cleanup levels according to the Guidance methodology. As indicated in the March 25, 1996 report, the general and specific equations for calculating the soil PCE cleanup level, with respect to the maximum contaminant limit (MCL) for water, at the 227.5 foot depth of interest is:

$C_{227.5} = AF_{227.5} * MCL_{PCE}$

$C_{227.5} = 26.4 * 5$

$C_{227.5} = 132$ ppb $= 132$ µg/kg

The Sixth step consisted of comparing the Site-specific PCE soil matrix concentrations to the depth-specific soil cleanup levels calculated using the methodology of the Guidance. Soil gas sample SG1-10 had a equivalent calculated soil matrix concentration of 90.9 ug/kg. This concentration was less than the depth-specific cleanup level concentration of 132 ug/kg as calculated above. Actual soil matrix samples (samples

G4-5 at 5 feet bgs and G5-7 at 7 feet bgs) taken from the site at shallower depths had PCE concentrations (14 and 75 ug/kg, respectively) less than the equivalent concentration calculated for the soil gas sample SG1-10 where the attenuating lithologic sequence was identical but thicker.

Based on implementation of the Guidance, it is concluded that actual PCE soil matrix concentrations and soil matrix concentrations calculated from PCE soil gas sample concentrations are below soil cleanup levels calculated using the methodology specified in the Guidance.

4.0 CLOSING REMARKS

Site soil gas levels result in calculated soil matrix concentrations less than the depth-specific calculated soil cleanup level. Site soil matrix samples at depths shallower than the soil gas samples had concentrations less than the calculated soil cleanup levels. The deepest soil gas sample collected in this sampling event yielded nondetect for all compounds in the soil gas sample analytic suite. In particular, the deepest soil gas sample (20 feet bgs) taken beneath the tank excavation area, yielded a nondetect result for PCE.

Petroleum hydrocarbon concentrations in the tank excavation area rapidly diminish with depth. Sample results from the current sampling event are consistent with the findings of previously reported investigations. Taken together, the results of this and previous Site investigation sample results indicate that petroleum hydrocarbons have not impacted soils in the tank excavation area below 40 feet bgs.

Based on application of the CRWQCB Guidance to this Site, it is concluded that Site soil gas and soil matrix concentrations of PCE are below levels which require cleanup.

The findings of this supplemental soil and soil gas sampling investigation confirm the findings and conclusions of the Geraghty & Miller report dated March 25, 1996.

Based on the data and interpretations contained in this and previous reports, Geraghty & Miller concludes that only limited impact by PCE to soils in the shallow subsurface has occurred, and that no impact to underlying groundwater from Site activities is indicated. Accordingly, Geraghty & Miller recommends that the Hawker Pacific facility and Site be removed from the list of potential dischargers and that no further action be required by Wagner and Basinger in defining or remediating previously suspected PCE impacts to groundwater.

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APPENDIX A

CHEMICAL LABORATORY ANALYTICAL RESULTS, CHAIN-OF-CUSTODY DOCUMENTATION, QUALITY CONTROL SUMMARIES, AND LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD WIP REPORT FORMS.

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax

Quanterra
Environmental Services

October 22, 1996

GERAGHTY & MILLER, INC.
3700 STATE STREET, STE 350
SANTA BARBARA, CA 93105
ATTN: DR. STEPHEN CULLEN

LIMS NO.: 121123-0001/0005
DATE SAMPLED: 6-SEP-1996
DATE SAMPLE REC'D: 6-SEP-1996
PROJECT: SUN VALLEY, SB0042.001.002

Enclosed with this letter is the report containing the analytical results for the project specified above.

The Narrative section included in the following attachment provides a detailed description of all events that occurred during sample processing, analysis, and data review as applicable to the samples and analytical methods requested.

Report data sheets contain a list of the requested constituents measured in each test, the analytical results, and the standard reporting limits (RLs). Reporting limits are adjusted to reflect any dilution or dry weight correction, when applicable. Solid and waste matrix samples are reported on an "as received" basis for this report. Also provided in this report are the LIMS Report Key and the terms and abbreviations commonly used in our reports.

Preliminary data were provided on September 23, 1996 at 10:15 A.M. to Steve Cohen.

The report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the data provided in this report, please call Patty Mata at (714) 258-8610. Release of this report has been authorized by the Lab Director or the designee as demonstrated by the following signature.

Sincerely,

Project Manager

cc: Project File

LIMS REPORT KEY

Quanterra Environmental Services

Section	Description
Cover letter	Signature page, report narrative as applicable.
Sample Description Information	Tabulated cross-reference between the Lab ID and Client ID, including matrix, date and time sampled and the date received for all samples in the project.
Sample Analysis Results Sheets	Lists sample results, test components, reporting limits, dates prepared and analyzed and any data qualifiers. Pages are organized by test.
QC Lot Assignment Report	Cross-reference between lab IDs and applicable QC batches (DCS, LCS, SCS, Blank, MS/SD, DU)
Duplicate Control Sample Report	Percent recovery and RPD results, with acceptance limits, for the laboratory Duplicate Control Samples for each test are tabulated in this report. These are measures of accuracy and precision for each test.
Laboratory Control Sample Report	Percent recovery results for a single Laboratory Control Sample (if applicable) are tabulated in this report, with the applicable acceptance limits for each test.
Matrix Spike/Matrix Spike Duplicate Report	Percent recovery and RPD results for matrix-specific QC samples and acceptance limits, where applicable. This report can be used to assess matrix effects on an analysis.
Single Control Sample Report	A tabulation of the surrogate recoveries for the blank for organic analyses.
Method Blank Report	A summary of the results of the analysis of the method blank for each test.

List of Abbreviations and Terms

DCS	Duplicate Control Sample	MSD	Matrix Spike Duplicate
DU	Sample Duplicate	QC Run	Preparation batch
EB	Equipment Blank	QC Category	LIMS QC Category
FB	Field Blank	QC Lot	DCS batch
FD	Field Duplicate	ND	Not Detected at the reporting limit expressed
IDL	Instrument Detection Limit	QC Matrix	Matrix of the laboratory control sample (s)
LCS	Laboratory Control Sample	RL	Reporting Limit
MB	Method Blank	QC	Quality Control
MDL	Method Detection Limit	SA	Sample
MS	Matrix Spike	SD	See MSD
RPD	Relative Percent Difference	TB	Trip Blank
ppm (parts-per-million)	mg/L or mg/kg	ppb (parts-per-billion)	µg/L or µg/kg
QUAL	Qualifier flag	DIL	Dilution Factor

Refer to the Quanterra Incorporated Quality Assurance Management Plan for detailed explanations of terms summarized above.

TABLE OF CONTENTS

LIMS # 121123

CASE NARRATIVE

LIMS # 121123

I. CONDITION UPON RECEIPT

Cooler was received intact. The temperature of the cooler was 3.3°C.

Sample containers were received intact. The VOA vials did not contain headspace. Sample container labels did agree with the COC as to sample ID, collection date/time, requested tests and/or preservatives.

Samples were received in time to meet the method holding time specifications. Any discrepancies identified upon sample receipt have been forwarded to the client and are documented in the enclosed COC records.

The method for volatile analysis of samples EB-1 (121123-0004) and TB-1 (121123-0005) was changed from 8260 to 8010/8020 by Tim Granzier of Geraghty & Miller on 9/9/96.

TOC analysis by EPA Method 9060-Modified was added to sample G5-7 (121123-0002) by Terry Baker of Geraghty & Miller on 9/30/96. This analysis was performed by Quanterra-West Sacramento. The TOC report is included with the Quanterra-Santa Ana report.

II. ORGANIC ANALYSES (BY METHOD: SW8260; SW8010/8020)

HOLDING TIME
All samples were prepared and analyzed within the method-specified holding time requirements.

METHOD BLANK
All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs
All spike recovery and RPD data met method- and/or project-specific QC criteria. The MS/MSD for ethyl benzene and xylenes had percent recoveries outside of acceptable limits. Acceptable LCS data indicated the analytical system was operating within control and the MS/MSD failures are most likely due to matrix effects.

The QC batch for the undiluted run of 121123-0002-SA showed unacceptable recoveries for PCE. This undiluted run was not used to report the PCE value. Instead, the 5X diluted run (121123-0002-DL) was used to report PCE, which was associated with acceptable QC.

SURROGATE RECOVERIES
All surrogate spike recoveries in samples and in QC samples met method- and/or project-specific QC criteria.

CALIBRATIONS
All calibrations and calibration verifications met method- and/or project-specific QC criteria.

SAMPLE RESULTS
Sample G5-7 (121123-0002) was analyzed at two different dilutions due to PCE levels above the instrument calibration range. The least diluted sample is labeled as 1211230-0002-SA and the more diluted sample is labelled as 121123-0002-DL.

CASE NARRATIVE

LIMS # 121123

III. GENERAL CHEMISTRY (BY METHOD: EPA418.1)

HOLDING TIME
All samples were prepared and analyzed within the method-specified holding time requirements.

METHOD BLANK
All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs
All spike recovery and RPD data met method- and/or project-specific QC criteria.

CALIBRATIONS
All calibrations and calibration verifications met method- and/or project-specific QC criteria.

IV. OUTSIDE ANALYSIS (BY METHOD: EPA9060M)

Please see attached narrative and report from Quanterra-West Sacramento.

LLER, INC.
Environmental Services

Laboratory Task Order No.

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

12/123 3.3°C

Project Number: SB0042.001.002
Project Location: 11310 Sherman Wy. Sun Valley CA
Laboratory: QUANTERRA
Sampler(s)/Affiliation: T. GRANZEIER G+M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	8260	8010/8020	418.1							TOTAL
G4-5	S	09.07.96 12:00			X	X							1 RING
G5-7	S	12:30			X	X							1 RING
FB-1	L	09:10		X									6 VOAS
~~VP~~ EB-1	L	11:30		~~X~~ PATTY	X								6 VOAS
TB-1	L	—		~~X~~ PATTY	X								4 VOAS

7BY 09-07-96 6 7BY

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: Tom Gra[illegible]	Organization: GERAGHTY & MILLER	Date 09/07/96 (6 7BY)	Time 16:05	Seal Intact? (Yes) No N/A
Received by: P Bautista	Organization: Courier, Self	Date 9/6/96	Time 1605	
Relinquished by: P Bautista	Organization: Courier, Self	Date 9/6/96	Time 1755	Seal Intact? (Yes) No N/A
Received by: [illegible]	Organization: Quanterra	Date 9/6/96	Time 1755	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☐ Common Carrier ______ SPECIFY ☐ Lab Courier ☐ Other ______ SPECIFY

GERAGHTY & MILLER, INC.
Environmental Services

A FAX FROM THE SANTA BARBARA OFFICE

A Heidemij company

PROJECT NUMBER: SB0042.001.002 **DATE:** 9/30/96

TO: Patty Mata **COMPANY:** Quantera

FAX NO: 714 258-8618

FROM: Terry Baker **No. of Pages:** 1 (incl.cover page)

Fax: (805) 687-0838 Phone: (805) 687-7559

TRANSMITTED FOR THE FOLLOWING:

____	Approval	____	Review and Comment
____	Your Use	✓	Approved as Noted
____	Your Information	____	Returned for Corrections
____	As Requested	____	____

REMARKS:

Please run EPA method 9060 modified for soils on Geraghty & Miller sample G5-7. We would like this analysis to be completed by Friday to meet the 28 day holding time restriction. If you have any question feel free to give me a call.

If you do not receive all of this fax, please call (805) 687-7559

3700 State Street, Suite 350 • Santa Barbara, California 93105 • (805) 687-7559 • FAX (805) 687-0838

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
Geraghty & Miller, Inc.

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
121123-0001-SA	G4-5	SOIL	06 SEP 96	12:00	06 SEP 96
121123-0002-SA	G5-7	SOIL	06 SEP 96	12:30	06 SEP 96
121123-0002-DL	G5-7	SOIL	06 SEP 96	12:30	06 SEP 96
121123-0003-FB	FB-1	WATER	06 SEP 96	09:10	06 SEP 96
121123-0004-EB	EB-1	WATER	06 SEP 96	11:30	06 SEP 96
121123-0005-TB	TB-1	WATER	06 SEP 96		06 SEP 96

Quanterra
Environmental Services

Volatile Organic Compounds
Method 8260

Client Name:	Geraghty & Miller, Inc.		
Client ID:	FB-1 (0.00,0.00,)		
LAB ID:	121123-0003-FB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 12 SEP 96	Analyzed: 12 SEP 96
Instrument:	GC/MS-MC	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		0.50	ug/L
Chloromethane	ND		1.0	ug/L
Vinyl chloride	ND		0.50	ug/L
Bromomethane	ND		1.0	ug/L
Chloroethane	ND		1.0	ug/L
Trichlorofluoromethane	ND		1.0	ug/L
1,1-Dichloroethene	ND		1.0	ug/L
Methylene chloride	ND		1.0	ug/L
trans-1,2-Dichloroethene	ND		1.0	ug/L
1,1-Dichloroethane	ND		1.0	ug/L
2,2-Dichloropropane	ND		1.0	ug/L
cis-1,2-Dichloroethene	ND		1.0	ug/L
Chloroform	ND		1.0	ug/L
Bromochloromethane	ND		1.0	ug/L
1;1,1-Trichloroethane	ND		1.0	ug/L
1,1-Dichloropropene	ND		1.0	ug/L
Carbon tetrachloride	ND		0.50	ug/L
1,2-Dichloroethane	ND		0.50	ug/L
Benzene	ND		0.50	ug/L
Trichloroethene	ND		1.0	ug/L
1,2-Dichloropropane	ND		1.0	ug/L
Bromodichloromethane	ND		1.0	ug/L
Dibromomethane	ND		1.0	ug/L
cis-1,3-Dichloropropene	ND		0.50	ug/L
Toluene	ND		1.0	ug/L
trans-1,3-Dichloropropene	ND		0.50	ug/L
1,1,2-Trichloroethane	ND		1.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	ug/L
1,3-Dichloropropane	ND		1.0	ug/L
Tetrachloroethene	ND		1.0	ug/L
Dibromochloromethane	ND		1.0	ug/L
Chlorobenzene	ND		1.0	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L
Ethylbenzene	ND		1.0	ug/L
Xylenes (total)	ND		1.0	ug/L
Styrene	ND		1.0	ug/L
Bromoform	ND		1.0	ug/L
1-Methylethylbenzene	ND		1.0	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L
1,2,3-Trichloropropane	ND		1.0	ug/L
n-Propyl benzene	ND		1.0	ug/L
Bromobenzene	ND		1.0	ug/L
1,3,5-Trimethylbenzene	ND		1.0	ug/L
2-Chlorotoluene	ND		1.0	ug/L
4-Chlorotoluene	ND		1.0	ug/L

ND = Not Detected

Quanterra Environmental Services

Volatile Organic Compounds
Method 8260 (cont.)

Client Name:	Geraghty & Miller, Inc.		
Client ID:	FB-1 (0.00,0.00,)		
LAB ID:	121123-0003-FB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 12 SEP 96	Analyzed: 12 SEP 96
Instrument:	GC/MS-MC	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
tert-Butylbenzene	ND		1.0	ug/L
1,2,4-Trimethylbenzene	ND		1.0	ug/L
sec-Butylbenzene	ND		1.0	ug/L
Isopropyltoluene	ND		1.0	ug/L
1,3-Dichlorobenzene	ND		1.0	ug/L
1,4-Dichlorobenzene	ND		1.0	ug/L
n-Butylbenzene	ND		1.0	ug/L
1,2-Dichlorobenzene	ND		1.0	ug/L
1,2-Dibromo-3-chloro-propane (DBCP)	ND		1.0	ug/L
1,2,4-Trichlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		1.0	ug/L
Naphthalene	ND		1.0	ug/L
1,2,3-Trichlorobenzene	ND		1.0	ug/L
Acetone	ND		100	ug/L
2-Butanone (MEK)	ND		100	ug/L
4-Methyl-2-pentanone (MIBK)	ND		100	ug/L
2-Hexanone	ND		100	ug/L
Acrolein	ND		100	ug/L
Acrylonitrile	ND		100	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	99	%	80 - 120
Toluene-d8	100	%	88 - 110
Bromofluorobenzene	90	%	86 - 115

ND = Not Detected

Quanterra Environmental Services

Halogenated Volatile Organics
Method 8010

Client Name:	Geraghty & Miller, Inc.		
Client ID:	G4-5		
LAB ID:	121123-0001-SA		
Matrix:	SOIL	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 13 SEP 96	Analyzed: 13 SEP 96
Instrument:	GC/HEC-VFB	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		1.0	ug/kg
Chloromethane	ND		2.0	ug/kg
Bromomethane	ND		2.0	ug/kg
Vinyl chloride	ND		1.0	ug/kg
Chloroethane	ND		2.0	ug/kg
Methylene chloride	ND		2.0	ug/kg
Trichlorofluoromethane	ND		2.0	ug/kg
1,1-Dichloroethene	ND		2.0	ug/kg
1,1-Dichloroethane	ND		2.0	ug/kg
trans-1,2-Dichloroethene	ND		2.0	ug/kg
cis-1,2-Dichloroethene	ND		2.0	ug/kg
Chloroform	ND		2.0	ug/kg
1,2-Dichloroethane	ND		1.0	ug/kg
1,1,1-Trichloroethane	ND		2.0	ug/kg
Carbon tetrachloride	ND		1.0	ug/kg
Bromodichloromethane	ND		2.0	ug/kg
1,2-Dichloropropane	ND		2.0	ug/kg
cis-1,3-Dichloropropene	ND		1.0	ug/kg
Trichloroethene	ND		2.0	ug/kg
Dibromochloromethane	ND		2.0	ug/kg
1,1,2-Trichloroethane	ND		2.0	ug/kg
trans-1,3-Dichloropropene	ND		1.0	ug/kg
2-Chloroethyl vinyl ether	ND		2.0	ug/kg
Bromoform	ND		2.0	ug/kg
Tetrachloroethene	14		2.0	ug/kg
1,1,1,2-Tetrachloroethane	ND		2.0	ug/kg
1,1,2,2-Tetrachloroethane	ND		2.0	ug/kg
Chlorobenzene	ND		2.0	ug/kg
1,3-Dichlorobenzene	ND		2.0	ug/kg
1,2-Dichlorobenzene	ND		2.0	ug/kg
1,4-Dichlorobenzene	ND		2.0	ug/kg

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	97	%	11 - 113

ND = Not Detected

Quanterra Environmental Services

Halogenated Volatile Organics
Method 8010

Client Name:	Geraghty & Miller, Inc.		
Client ID:	G5-7		
LAB ID:	121123-0002-SA		
Matrix:	SOIL	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/HEC-VFB	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		1.0	ug/kg
Chloromethane	ND		2.0	ug/kg
Bromomethane	ND		2.0	ug/kg
Vinyl chloride	ND		1.0	ug/kg
Chloroethane	ND		2.0	ug/kg
Methylene chloride	ND		2.0	ug/kg
Trichlorofluoromethane	ND		2.0	ug/kg
1,1-Dichloroethene	ND		2.0	ug/kg
1,1-Dichloroethane	ND		2.0	ug/kg
trans-1,2-Dichloroethene	ND		2.0	ug/kg
cis-1,2-Dichloroethene	ND		2.0	ug/kg
Chloroform	ND		2.0	ug/kg
1,2-Dichloroethane	ND		1.0	ug/kg
1,1,1-Trichloroethane	ND		2.0	ug/kg
Carbon tetrachloride	ND		1.0	ug/kg
Bromodichloromethane	ND		2.0	ug/kg
1,2-Dichloropropane	ND		2.0	ug/kg
cis-1,3-Dichloropropene	ND		1.0	ug/kg
Trichloroethene	ND		2.0	ug/kg
Dibromochloromethane	ND		2.0	ug/kg
1,1,2-Trichloroethane	ND		2.0	ug/kg
trans-1,3-Dichloropropene	ND		1.0	ug/kg
2-Chloroethyl vinyl ether	ND		2.0	ug/kg
Bromoform	ND		2.0	ug/kg
Tetrachloroethene	89	E	2.0	ug/kg
1,1,1,2-Tetrachloroethane	ND		2.0	ug/kg
1,1,2,2-Tetrachloroethane	ND		2.0	ug/kg
Chlorobenzene	ND		2.0	ug/kg
1,3-Dichlorobenzene	ND		2.0	ug/kg
1,2-Dichlorobenzene	ND		2.0	ug/kg
1,4-Dichlorobenzene	ND		2.0	ug/kg

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	51	%	11 - 113

E = Concentration exceeds calibration range. Value is estimated.
ND = Not Detected

Quanterra Environmental Services

Halogenated Volatile Organics
Method 8010

Client Name:	Geraghty & Miller, Inc.		
Client ID:	G5-7		
LAB ID:	121123-0002-DL		
Matrix:	SOIL	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 12 SEP 96	Analyzed: 12 SEP 96
Instrument:	GC/HEC-VFB	Dilution: 5.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		5.0	ug/kg
Chloromethane	ND		10	ug/kg
Bromomethane	ND		10	ug/kg
Vinyl chloride	ND		5.0	ug/kg
Chloroethane	ND		10	ug/kg
Methylene chloride	ND		10	ug/kg
Trichlorofluoromethane	ND		10	ug/kg
1,1-Dichloroethene	ND		10	ug/kg
1,1-Dichloroethane	ND		10	ug/kg
trans-1,2-Dichloroethene	ND		10	ug/kg
cis-1,2-Dichloroethene	ND		10	ug/kg
Chloroform	ND		10	ug/kg
1,2-Dichloroethane	ND		5.0	ug/kg
1,1,1-Trichloroethane	ND		10	ug/kg
Carbon tetrachloride	ND		5.0	ug/kg
Bromodichloromethane	ND		10	ug/kg
1,2-Dichloropropane	ND		10	ug/kg
cis-1,3-Dichloropropene	ND		5.0	ug/kg
Trichloroethene	ND		10	ug/kg
Dibromochloromethane	ND		10	ug/kg
1,1,2-Trichloroethane	ND		10	ug/kg
trans-1,3-Dichloropropene	ND		5.0	ug/kg
2-Chloroethyl vinyl ether	ND		10	ug/kg
Bromoform	ND		10	ug/kg
Tetrachloroethene	75		10	ug/kg
1,1,1,2-Tetrachloroethane	ND		10	ug/kg
1,1,2,2-Tetrachloroethane	ND		10	ug/kg
Chlorobenzene	ND		10	ug/kg
1,3-Dichlorobenzene	ND		10	ug/kg
1,2-Dichlorobenzene	ND		10	ug/kg
1,4-Dichlorobenzene	ND		10	ug/kg

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	78	%	11 - 113

ND = Not Detected

Quanterra Environmental Services

Halogenated Volatile Organics
Method 8010

Client Name:	Geraghty & Miller, Inc.		
Client ID:	EB-1		
LAB ID:	121123-0004-EB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/HEC-VFB	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		0.50	ug/L
Chloromethane	ND		1.0	ug/L
Bromomethane	ND		1.0	ug/L
Vinyl chloride	ND		0.50	ug/L
Chloroethane	ND		1.0	ug/L
Methylene chloride	ND		1.0	ug/L
Trichlorofluoromethane	ND		1.0	ug/L
1,1-Dichloroethene	ND		1.0	ug/L
1,1-Dichloroethane	ND		1.0	ug/L
trans-1,2-Dichloroethene	ND		1.0	ug/L
cis-1,2-Dichloroethene	ND		1.0	ug/L
Chloroform	ND		1.0	ug/L
1,2-Dichloroethane	ND		0.50	ug/L
1,1,1-Trichloroethane	ND		1.0	ug/L
Carbon tetrachloride	ND		0.50	ug/L
Bromodichloromethane	ND		1.0	ug/L
1,2-Dichloropropane	ND		1.0	ug/L
cis-1,3-Dichloropropene	ND		0.50	ug/L
Trichloroethene	ND		1.0	ug/L
Dibromochloromethane	ND		1.0	ug/L
1,1,2-Trichloroethane	ND		1.0	ug/L
trans-1,3-Dichloropropene	ND		0.50	ug/L
2-Chloroethyl vinyl ether	ND		1.0	ug/L
Bromoform	ND		1.0	ug/L
Tetrachloroethene	ND		1.0	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L
Chlorobenzene	ND		1.0	ug/L
1,3-Dichlorobenzene	ND		1.0	ug/L
1,2-Dichlorobenzene	ND		1.0	ug/L
1,4-Dichlorobenzene	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	88	%	31 - 125

ND = Not Detected

Quanterra Environmental Services

Halogenated Volatile Organics
Method 8010

Client Name:	Geraghty & Miller, Inc.		
Client ID:	TB-1		
LAB ID:	121123-0005-TB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/HEC-VFB	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Dichlorodifluoromethane	ND		0.50	ug/L
Chloromethane	ND		1.0	ug/L
Bromomethane	ND		1.0	ug/L
Vinyl chloride	ND		0.50	ug/L
Chloroethane	ND		1.0	ug/L
Methylene chloride	ND		1.0	ug/L
Trichlorofluoromethane	ND		1.0	ug/L
1,1-Dichloroethene	ND		1.0	ug/L
1,1-Dichloroethane	ND		1.0	ug/L
trans-1,2-Dichloroethene	ND		1.0	ug/L
cis-1,2-Dichloroethene	ND		1.0	ug/L
Chloroform	ND		1.0	ug/L
1,2-Dichloroethane	ND		0.50	ug/L
1,1,1-Trichloroethane	ND		1.0	ug/L
Carbon tetrachloride	ND		0.50	ug/L
Bromodichloromethane	ND		1.0	ug/L
1,2-Dichloropropane	ND		1.0	ug/L
cis-1,3-Dichloropropene	ND		0.50	ug/L
Trichloroethene	ND		1.0	ug/L
Dibromochloromethane	ND		1.0	ug/L
1,1,2-Trichloroethane	ND		1.0	ug/L
trans-1,3-Dichloropropene	ND		0.50	ug/L
2-Chloroethyl vinyl ether	ND		1.0	ug/L
Bromoform	ND		1.0	ug/L
Tetrachloroethene	ND		1.0	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L
Chlorobenzene	ND		1.0	ug/L
1,3-Dichlorobenzene	ND		1.0	ug/L
1,2-Dichlorobenzene	ND		1.0	ug/L
1,4-Dichlorobenzene	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	90	%	31 - 125

ND = Not Detected

Quanterra
Environmental Services

Aromatic Volatile Organics
Method 8020

Client Name:	Geraghty & Miller, Inc.		
Client ID:	G4-5		
LAB ID:	121123-0001-SA		
Matrix:	SOIL	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/PID-VFA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Benzene	ND		1.0	ug/kg
Toluene	ND		2.0	ug/kg
Chlorobenzene	ND		2.0	ug/kg
Ethylbenzene	ND		2.0	ug/kg
Xylenes (total)	ND		2.0	ug/kg

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	30	%	30 - 137

ND = Not Detected

Quanterra Environmental Services

Aromatic Volatile Organics
Method 8020

Client Name:	Geraghty & Miller, Inc.		
Client ID:	G5-7		
LAB ID:	121123-0002-SA		
Matrix:	SOIL	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/PID-VFA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Benzene	ND		1.0	ug/kg
Toluene	ND		2.0	ug/kg
Chlorobenzene	ND		2.0	ug/kg
Ethylbenzene	ND		2.0	ug/kg
Xylenes (total)	ND		2.0	ug/kg

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	57	%	30 - 137

ND = Not Detected

Quanterra
Environmental Services

Aromatic Volatile Organics
Method 8020

Client Name:	Geraghty & Miller, Inc.		
Client ID:	EB-1		
LAB ID:	121123-0004-EB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/PID-VFA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Benzene	ND		0.50	ug/L
Toluene	ND		0.50	ug/L
Chlorobenzene	ND		0.50	ug/L
Ethylbenzene	ND		0.50	ug/L
Xylenes (total)	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	96	%	29 - 137

ND = Not Detected

Quanterra
Environmental Services

Aromatic Volatile Organics
Method 8020

Client Name:	Geraghty & Miller, Inc.		
Client ID:	TB-1		
LAB ID:	121123-0005-TB		
Matrix:	WATER	Sampled: 06 SEP 96	Received: 06 SEP 96
Authorized:	09 SEP 96	Prepared: 11 SEP 96	Analyzed: 11 SEP 96
Instrument:	GC/PID-VFA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Benzene	ND		0.50	ug/L
Toluene	ND		0.50	ug/L
Chlorobenzene	ND		0.50	ug/L
Ethylbenzene	ND		0.50	ug/L
Xylenes (total)	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range
Bromofluorobenzene	96	%	29 - 137

ND = Not Detected

Quanterra Environmental Services

Total Recoverable Petroleum Hydrocarbons
Method 418.1

Client Name: Geraghty & Miller, Inc.
Client ID: G4-5 (0.00,0.00,)
LAB ID: 121123-0001-SA
Matrix: SOIL
Authorized: 09 SEP 96
Sampled: 06 SEP 96
Prepared: See Below
Received: 06 SEP 96
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
TPH, Recoverable	2000		50	500	mg/kg	EPA 418.1	10 SEP 96	11 SEP 96

Quanterra Environmental Services

Total Recoverable Petroleum Hydrocarbons
Method 418.1

Client Name: Geraghty & Miller, Inc.
Client ID: G5-7 (0.00,0.00,)
LAB ID: 121123-0002-SA
Matrix: SOIL Sampled: 06 SEP 96 Received: 06 SEP 96
Authorized: 09 SEP 96 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
TPH, Recoverable	170		5.0	50	mg/kg	EPA 418.1	10 SEP 96	11 SEP 96

Quanterra
Environmental
Services

QC LOT ASSIGNMENT REPORT - MS QC
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
121123-0003-FB	AQUEOUS	8260-WIP-A		12 SEP 96-ACX	

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Volatile Organics by GC/MS
Project: 121123

Category: 8260-WIP-A Method 8260 - Volatile Organics
Matrix: AQUEOUS
Date Analyzed: 12 SEP 96
QC Run: 12 SEP 96-ACX
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
1,1-Dichloroethene	10.0	9.83	98	80-120
1,1-Dichloroethane	10.0	9.74	97	80-120
Chloroform	10.0	9.69	97	80-120
1,2-Dichloroethane	10.0	10.3	100	80-120
Benzene	10.0	10.1	101	80-120
Trichloroethene	10.0	10.1	101	80-120
Toluene	10.0	9.90	99	80-120
Tetrachloroethene	10.0	10.6	110	80-120
1,2-Dichloroethane-d4	10.0	10.7	107	80-120
Toluene-d8	10.0	10.2	102	88-110
Bromofluorobenzene	10.0	9.57	96	86-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS
Project: 121123

Test: 8260-WIP-A Method 8260 - Volatile Organics
Matrix: AQUEOUS
QC Run: 12 SEP 96-ACX Date Analyzed: 12 SEP 96

Analyte	Result	Units	Reporting Limit
Dichlorodifluoromethane	ND	ug/L	0.50
Chloromethane	ND	ug/L	1.0
Vinyl chloride	ND	ug/L	0.50
Bromomethane	ND	ug/L	1.0
Chloroethane	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
Methylene chloride	ND	ug/L	1.0
trans-1,2-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2,2-Dichloropropane	ND	ug/L	1.0
cis-1,2-Dichloroethene	ND	ug/L	1.0
Chloroform	ND	ug/L	1.0
Bromochloromethane	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1-Dichloropropene	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	0.50
1,2-Dichloroethane	ND	ug/L	0.50
Benzene	ND	ug/L	0.50
Trichloroethene	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	0.50
Toluene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	0.50
1,1,2-Trichloroethane	ND	ug/L	1.0
1,2-Dibromoethane (EDB)	ND	ug/L	1.0
1,3-Dichloropropane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1-Methylethylbenzene	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
1,2,3-Trichloropropane	ND	ug/L	1.0
n-Propyl benzene	ND	ug/L	1.0
Bromobenzene	ND	ug/L	1.0
1,3,5-Trimethylbenzene	ND	ug/L	1.0
2-Chlorotoluene	ND	ug/L	1.0

ND = Not Detected

Quanterra
Environmental Services

METHOD BLANK REPORT (cont.)
Volatile Organics by GC/MS
Project: 121123

Test: 8260-WIP-A Method 8260 - Volatile Organics (cont.)
Matrix: AQUEOUS
QC Run: 12 SEP 96-ACX Date Analyzed: 12 SEP 96

Analyte	Result	Units	Reporting Limit
4-Chlorotoluene	ND	ug/L	1.0
tert-Butylbenzene	ND	ug/L	1.0
1,2,4-Trimethylbenzene	ND	ug/L	1.0
sec-Butylbenzene	ND	ug/L	1.0
Isopropyltoluene	ND	ug/L	1.0
1,3-Dichlorobenzene	ND	ug/L	1.0
1,4-Dichlorobenzene	ND	ug/L	1.0
n-Butylbenzene	ND	ug/L	1.0
1,2-Dichlorobenzene	ND	ug/L	1.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	1.0
1,2,4-Trichlorobenzene	ND	ug/L	1.0
Hexachlorobutadiene	ND	ug/L	1.0
Naphthalene	ND	ug/L	1.0
1;2,3-Trichlorobenzene	ND	ug/L	1.0
Acetone	ND	ug/L	100
2-Butanone (MEK)	ND	ug/L	100
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100
2-Hexanone	ND	ug/L	100
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100

Surrogate	Recovery	Acceptable Range
1,2-Dichloroethane-d4	92	80 -120
Toluene-d8	99	88 -110
Bromofluorobenzene	88	86 -115

ND = Not Detected

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT - MS QC
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
121123-0001-SA	SOLID	8010-WIP-S		12 SEP 96-AFX	12 SEP 96-AA
121123-0001-SA	SOLID	8020-WIP-S		11 SEP 96-AFX	11 SEP 96-AA
121123-0002-DL	SOLID	8010-WIP-S		12 SEP 96-AFX	12 SEP 96-AA
121123-0002-SA	SOLID	8010-WIP-S		11 SEP 96-AFX	12 SEP 96-AA
121123-0002-SA	SOLID	8020-WIP-S		11 SEP 96-AFX	11 SEP 96-AA
121123-0004-EB	AQUEOUS	8010-WIP-A		10 SEP 96-AFX	
121123-0004-EB	AQUEOUS	8020-WIP-A		10 SEP 96-AFX	
121123-0005-TB	AQUEOUS	8010-WIP-A		10 SEP 96-AFX	
121123-0005-TB	AQUEOUS	8020-WIP-A		10 SEP 96-AFX	

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Volatile Organics by GC
Project: 121123

Category: 8010-WIP-S Halogenated Volatile Organics
Matrix: SOLID
Date Analyzed: 12 SEP 96
QC Run: 12 SEP 96-AFX
Concentration Units: ug/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
1,1-Dichloroethene	10.0	10.8	108	80-120
1,1-Dichloroethane	10.0	10.9	109	80-120
Chloroform	10.0	11.0	110	80-120
1,2-Dichloroethane	10.0	11.0	110	80-120
Trichloroethene	10.0	11.0	110	80-120
Tetrachloroethene	10.0	10.8	108	80-120

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Bromofluorobenzene	20.0	20.8	104	19-134

Category: 8010-WIP-S Halogenated Volatile Organics
Matrix: SOLID
Date Analyzed: 11 SEP 96
QC Run: 11 SEP 96-AFX
Concentration Units: ug/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits	
1,1-Dichloroethene	10.0	8.93	89	80-120	
1,1-Dichloroethane	10.0	9.73	97	80-120	
Chloroform	10.0	9.81	98	80-120	
1,2-Dichloroethane	10.0	9.68	97	80-120	
Trichloroethene	10.0	10.7	107	80-120	
Tetrachloroethene	10.0	23.7	237	80-120	a

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Bromofluorobenzene	20.0	19.2	96	19-134

Category: 8020-WIP-S Aromatic Volatile Organics
Matrix: SOLID
Date Analyzed: 11 SEP 96
QC Run: 11 SEP 96-AFX
Concentration Units: ug/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Benzene	10.0	9.75	98	80-120
Toluene	10.0	9.68	97	80-120
Ethylbenzene	10.0	9.70	97	80-120
Xylenes (total)	30.0	29.5	98	80-120

a = See narrative.
Calculations are performed before rounding to avoid round-off errors in calculated results.

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Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Volatile Organics by GC (cont.)
Project: 121123

Surrogates	Concentration Spiked	Measured	Accuracy (%) LCS	Limits
Bromofluorobenzene	20.0	18.9	94	30-137

Category: 8010-WIP-A Halogenated Volatile Organics
Matrix: AQUEOUS Date Analyzed: 10 SEP 96
QC Run: 10 SEP 96-AFX
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured	Accuracy (%) LCS	Limits
1,1-Dichloroethene	10.0	9.65	96	80-120
1,1-Dichloroethane	10.0	10.4	104	80-120
Chloroform	10.0	10.6	106	80-120
1,2-Dichloroethane	10.0	10.5	105	80-120
Trichloroethene	10.0	10.4	104	80-120
Tetrachloroethene	10.0	9.86	99	80-120

Surrogates	Concentration Spiked	Measured	Accuracy (%) LCS	Limits
Bromofluorobenzene	20.0	20.7	103	29-130

Category: 8020-WIP-A Aromatic Volatile Organics + MTBE
Matrix: AQUEOUS Date Analyzed: 10 SEP 96
QC Run: 10 SEP 96-AFX
Concentration Units: ug/L

Analyte	Concentration Spiked	Measured	Accuracy (%) LCS	Limits
Benzene	10.0	10.2	102	80-120
Toluene	10.0	10.1	101	80-120
Ethylbenzene	10.0	10.1	101	80-120
Xylenes (total)	30.0	30.4	101	80-120

Surrogates	Concentration Spiked	Measured	Accuracy (%) LCS	Limits
Bromofluorobenzene	20.0	20.2	101	29-137

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Volatile Organics by GC
Project: 121123

Category: 8010-WIP-S Halogenated Volatile Organics
Matrix: SOLID
Sample: 121016-0001
MS Run: 12 SEP 96-AA
Units ug/kg Units Qualifier: Wet wt.

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
1,1-Dichloroethene	ND	10.3	8.46	10.0	103	85	20	18-104	34
1,1-Dichloroethane	ND	10.0	8.71	10.0	100	87	14	32-103	35
Chloroform	ND	10.1	8.89	10.0	101	89	13	38-113	37
1,2-Dichloroethane	ND	9.88	8.95	10.0	99	90	9.8	38-112	46
Trichloroethene	ND	10.1	8.66	10.0	101	87	15	34-126	38
Tetrachloroethene	ND	9.54	8.24	10.0	95	82	15	53-123	39

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
Bromofluorobenzene	39	88	72	11-113

Category: 8020-WIP-S Aromatic Volatile Organics
Matrix: SOLID
Sample: 121123-0001
MS Run: 11 SEP 96-AA
Units ug/kg Units Qualifier: Wet wt.

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Benzene	ND	7.63	7.58	10.0	76	76	0.6	41-128	20
Toluene	ND	5.48	5.49	10.0	55	55	0.1	39-137	20
Ethylbenzene	ND	3.88	3.96	10.0	39	40	2.0	46-127	20
Xylenes (total)	ND	11.2	11.4	30.0	37	38	1.6	38-124	30

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
Bromofluorobenzene	30	33	31	30-137

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC
Project: 121123

Test: 8010-WIP-S Method 8010 - Halogenated Volatile Organics
Matrix: SOLID
QC Run: 12 SEP 96-AFX Date Analyzed: 12 SEP 96

Analyte	Result	Units	Reporting Limit
Dichlorodifluoromethane	ND	ug/kg	1.0
Chloromethane	ND	ug/kg	2.0
Bromomethane	ND	ug/kg	2.0
Vinyl chloride	ND	ug/kg	1.0
Chloroethane	ND	ug/kg	2.0
Methylene chloride	ND	ug/kg	2.0
Trichlorofluoromethane	ND	ug/kg	2.0
1,1-Dichloroethene	ND	ug/kg	2.0
1,1-Dichloroethane	ND	ug/kg	2.0
trans-1,2-Dichloroethene	ND	ug/kg	2.0
cis-1,2-Dichloroethene	ND	ug/kg	2.0
Chloroform	ND	ug/kg	2.0
1,2-Dichloroethane	ND	ug/kg	1.0
1,1,1-Trichloroethane	ND	ug/kg	2.0
Carbon tetrachloride	ND	ug/kg	1.0
Bromodichloromethane	ND	ug/kg	2.0
1,2-Dichloropropane	ND	ug/kg	2.0
cis-1,3-Dichloropropene	ND	ug/kg	1.0
Trichloroethene	ND	ug/kg	2.0
Dibromochloromethane	ND	ug/kg	2.0
1,1,2-Trichloroethane	ND	ug/kg	2.0
trans-1,3-Dichloropropene	ND	ug/kg	1.0
2-Chloroethyl vinyl ether	ND	ug/kg	2.0
Bromoform	ND	ug/kg	2.0
Tetrachloroethene	ND	ug/kg	2.0
1,1,1,2-Tetrachloroethane	ND	ug/kg	2.0
1,1,2,2-Tetrachloroethane	ND	ug/kg	2.0
Chlorobenzene	ND	ug/kg	2.0
1,3-Dichlorobenzene	ND	ug/kg	2.0
1,2-Dichlorobenzene	ND	ug/kg	2.0
1,4-Dichlorobenzene	ND	ug/kg	2.0

Surrogate	Recovery	Acceptable Range
Bromofluorobenzene	92	19 -134

ND = Not Detected

Quanterra
Environmental Services

METHOD BLANK REPORT (cont.)
Volatile Organics by GC
Project: 121123

Test: 8010-WIP-S Method 8010 - Halogenated Volatile Organics
Matrix: SOLID
QC Run: 11 SEP 96-AFX Date Analyzed: 11 SEP 96

Analyte	Result	Units	Reporting Limit
Dichlorodifluoromethane	ND	ug/kg	1.0
Chloromethane	ND	ug/kg	2.0
Bromomethane	ND	ug/kg	2.0
Vinyl chloride	ND	ug/kg	1.0
Chloroethane	ND	ug/kg	2.0
Methylene chloride	ND	ug/kg	2.0
Trichlorofluoromethane	ND	ug/kg	2.0
1,1-Dichloroethene	ND	ug/kg	2.0
1,1-Dichloroethane	ND	ug/kg	2.0
trans-1,2-Dichloroethene	ND	ug/kg	2.0
cis-1,2-Dichloroethene	ND	ug/kg	2.0
Chloroform	ND	ug/kg	2.0
1,2-Dichloroethane	ND	ug/kg	1.0
1,1,1-Trichloroethane	ND	ug/kg	2.0
Carbon tetrachloride	ND	ug/kg	1.0
Bromodichloromethane	ND	ug/kg	2.0
1,2-Dichloropropane	ND	ug/kg	2.0
cis-1,3-Dichloropropene	ND	ug/kg	1.0
Trichloroethene	ND	ug/kg	2.0
Dibromochloromethane	ND	ug/kg	2.0
1,1,2-Trichloroethane	ND	ug/kg	2.0
trans-1,3-Dichloropropene	ND	ug/kg	1.0
2-Chloroethyl vinyl ether	ND	ug/kg	2.0
Bromoform	ND	ug/kg	2.0
Tetrachloroethene	2.9	ug/kg	2.0
1,1,1,2-Tetrachloroethane	ND	ug/kg	2.0
1,1,2,2-Tetrachloroethane	ND	ug/kg	2.0
Chlorobenzene	ND	ug/kg	2.0
1,3-Dichlorobenzene	ND	ug/kg	2.0
1,2-Dichlorobenzene	ND	ug/kg	2.0
1,4-Dichlorobenzene	ND	ug/kg	2.0

Surrogate	Recovery	Acceptable Range
Bromofluorobenzene	ND	19 -134

ND = Not Detected

Quanterra
Environmental Services

METHOD BLANK REPORT (cont.)
Volatile Organics by GC
Project: 121123

Test: 8020_MTBE-WIP-S Method 8020 - Aromatic Volatile Organics
Matrix: SOLID
QC Run: 11 SEP 96-AFX Date Analyzed: 11 SEP 96

Analyte	Result	Units	Reporting Limit
Benzene	ND	ug/kg	1.0
Toluene	ND	ug/kg	2.0
Chlorobenzene	ND	ug/kg	2.0
Ethylbenzene	ND	ug/kg	2.0
Xylenes (total)	ND	ug/kg	2.0

Surrogate	Recovery	Acceptable Range
Bromofluorobenzene	93	30 -137

ND = Not Detected

Quanterra
Environmental Services

METHOD BLANK REPORT (cont.)
Volatile Organics by GC
Project: 121123

Test: 8010-WIP-A Method 8010 - Halogenated Volatile Organics
Matrix: AQUEOUS
QC Run: 10 SEP 96-AFX Date Analyzed: 10 SEP 96

Analyte	Result	Units	Reporting Limit
Dichlorodifluoromethane	ND	ug/L	0.50
Chloromethane	ND	ug/L	1.0
Bromomethane	ND	ug/L	1.0
Vinyl chloride	ND	ug/L	0.50
Chloroethane	ND	ug/L	1.0
Methylene chloride	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
trans-1,2-Dichloroethene	ND	ug/L	1.0
cis-1,2-Dichloroethene	ND	ug/L	1.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	0.50
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	0.50
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	0.50
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	0.50
2-Chloroethyl vinyl ether	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
1,3-Dichlorobenzene	ND	ug/L	1.0
1,2-Dichlorobenzene	ND	ug/L	1.0
1,4-Dichlorobenzene	ND	ug/L	1.0

Surrogate	Recovery	Acceptable Range
Bromofluorobenzene	94	29 -130

ND = Not Detected

Quanterra
Environmental Services

METHOD BLANK REPORT (cont.)
Volatile Organics by GC
Project: 121123

Test: 8020-MTBE-WIP-A Method 8020 - Aromatic Volatile Organics + MTBE
Matrix: AQUEOUS
QC Run: 10 SEP 96-AFX Date Analyzed: 10 SEP 96

Analyte	Result	Units	Reporting Limit
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Chlorobenzene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	1.0

Surrogate	Recovery	Acceptable Range
Bromofluorobenzene	102	29 -137

ND = Not Detected

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT - MS QC
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
121123-0001-SA	SOLID	TPH-IR-S		10 SEP 96-BX	10 SEP 96-AB
121123-0002-SA	SOLID	TPH-IR-S		10 SEP 96-BX	10 SEP 96-AB

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation
Project: 121123

Category: TPH-IR-S Total Petroleum Hydrocarbons by IR
Matrix: SOLID Date Analyzed: 11 SEP 96
QC Run: 10 SEP 96-BX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
TPH, Recoverable	40.0	39.3	98	75-125

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Wet Chemistry Analysis and Preparation
Project: 121123

Category: TPH-IR-S Total Petroleum Hydrocarbons by IR
Matrix: SOLID
Sample: 121123-0001
MS Run: 10 SEP 96-AB
Units: mg/kg

Analyte	Concentration Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
TPH, Recoverable	2030	3770 n	3650 n	40.0	NC	NC	NC	75-125	25

n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
N = Not Calculated, calculation not applicable.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation
Project: 121123

Test: TRPH-S
Matrix: SOLID
QC Run: 10 SEP 96-BX

Method EPA 418.1 - Total Petroleum Hydrocarbons, Recoverable

Date Analyzed: 11 SEP 96

Analyte	Result	Units	Reporting Limit
TPH, Recoverable	ND	mg/kg	10

ND = Not Detected

Quanterra Environmental Services

Quanterra Incorporated
880 Riverside Parkway
West Sacramento, California 95605

916 373-5600 Telephone
916 372-1059 Fax

October 7, 1996

QUANTERRA PROJECT NUMBER: 121123
PO/CONTRACT: SB0042.001.002

Patty Mata
Quanterra Environmental Services
1721 South Grand Avenue
Santa Ana, CA 92705

Dear Ms Mata:

This report contains the analytical results for the one soil sample which was received under chain of custody by Quanterra Environmental Services on 01 October 1996. This sample set is associated with your G & M, WIP Sun Valley project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916)374-4443.

Sincerely,

Kristina D. Rogers

Kristina D. Rogers
Project Manager

KDR/jas

Enclosures

Quanterra
Environmental Services

TABLE OF CONTENTS

QUANTERRA PROJECT NUMBER 121123

Quanterra
Environmental Services

CASE NARRATIVE

QUANTERRA PROJECT NUMBER 121123

There were no anomalies associated with this report.

Quanterra Environmental Services

QUANTERRA'S QUALITY ASSURANCE PROGRAM

Quanterra has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documentable quality. A key element of this program is Quanterra's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
Quanterra Incorporated (Santa Ana)

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
121123-0002-SA	G5-7	SOIL	06 SEP 96	12:30	06 SEP 96

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

TO W. SAC

Client: QES-S.A	Project Manager: P. MATA	Date: 9/30/96	Chain Of Custody Number: 60013
Address: 1721 S. GRAND	Telephone Number (Area Code)/Fax Number: 714 258 8610	Lab Number: 121123	Page 1 of 1
City: SANTA ANA / State: CA / Zip Code: 9	Site Contact:	Lab Contact: K. ROGERS	
Project Name: G+M, WIP SUN VALLEY	Carrier/Waybill Number: FED EX		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	TUBES	Analysis (Attach list if more space is needed): TOC/9060	Special Instructions/ Conditions of Receipt
G5-7 (-002)	9/6/96	1230			X	X						1	X	

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 10/3/96

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	9/30/96	1700	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By	10/1/96	1035

Comments

SAMPLE IN GOOD CONDITION 10/1/96

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Quanterra
Environmental
Services

Total Organic Carbon - Method 9060 Modified

Quanterra
Environmental Services

GENERAL INORGANICS

(Soil/Solid)

Client Name: Quanterra Incorporated (Santa Ana)
Client ID: G5-7
Lab ID: 121123-0002-SA
Matrix: SOIL Sampled: 06 SEP 96 Received: 06 SEP 96
Authorized: 09 SEP 96 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Organic Carbon, Total	1760	mg/kg	100	9060 Modified	02 OCT 96	03 OCT 96

ND = Not detected
NA = Not applicable

Reported By: Stephen Flocchini Approved By: Jennifer Kimzey

The cover letter is an integral part of this report.
Rev 230787

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT - MS QC
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
121123-0002-SA	SOIL	TOC-9060-S	02 OCT 96-AX	02 OCT 96-A	02 OCT 96-AA

Quanterra
Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation
Project: 121123

Test: TOC-9060-S — Total Organic Carbon (TOC)-Direct Combustion Method
Method: 9060 Modified
Matrix: SOIL
QC Lot: 02 OCT 96-AX QC Run: 02 OCT 96-A

Analyte	Result	Units	Reporting Limit	Qualifier
Organic Carbon, Total	ND	mg/kg	100	

ND = Not Detected

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation
Project: 121123

Category: TOC-9060-S Total Organic Carbon (TOC)-Direct combustion
Test: TOC-9060-S
Matrix: SOIL
QC Lot: 02 OCT 96-AX QC Run: 02 OCT 96-A
Concentration Units: mg/kg

Analyte	Concentration Spiked	Measured	Accuracy(%) LCS	Limits
Organic Carbon, Total	5000	4760	95	75-125

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

TRIX SPIKE/MATRIX SPIKE DUPLICATE MSQC REPORT
t Chemistry Analysis and Preparation
roject: 121123

ategory: TOC-9060-S Total Organic Carbon (TOC)-Direct combustion
est : TOC-9060-S Method: 9060 Modified
rix : SOIL
ample : 121626-0002
nits : mg/kg Units Qualifier: Wet Weight
Lot : 02 OCT 96-AX MS Run: 02 OCT 96-AA

	Concentration								
Analyte	Sample Result	MS Result	MSD Result	Spiked MS/MSD	%Recovery MS	%Recovery MSD	Control Limits	%RPD	RPD Limit
Organic Carbon, Total	ND	11200	10700	14000	80	76	75-125	5.1	20

D = Not Detected
a culations are performed before rounding to avoid round-off errors in calculated results.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

LABORATORY REPORT FORM (COVER PAGE 1)

Laboratory Name:	Quanterra
Address:	1721 S. Grand Ave.
	Santa Ana, CA 92705
Telephone/FAX:	(714) 258-8610 (714) 258-8618
ELAP Certification No.	2092 Expiration Date: 10/31/97
Authorized Signature Name, Title (print)	Manny Velazquez, Senior Laboratory Manager
Signature	
Client Name:	Geraghty & Miller
Project No.:	121123, Sun Valley
Date(s) Sampled:	9/6/96 To 9/6/96
Date(s) received:	9/6/96 To
Date(s) reported:	10/22/96
Chain of custody received:	Yes X No
Comments:	

(RWQCB LabForm; Ver 12/94)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

LABORATORY REPORT FORM (COVER PAGE 2)

Organic Analyses	# of Samples	# of Samples Subcontracted
8260	1	0
8010/8020	4	0
TRPH, 418.1	2	0
Sample Condition:	Intact.	

Inorganic Analyses	# of Samples	# of Samples Subcontracted

Sample Condition:

Microbiological Analyses	# of Samples	# of Samples Subcontracted

Sample Condition:

Other Types of Analyses	# of Samples	# of Samples Subcontracted

Sample condition:

MEMORANDUM

FROM: Quanterra - Santa Ana
Patty Mata

TO: Geraghty & Miller
Dr. Steve Cohen

DATE: October 22, 1996

PROJECT: 121123, Sun Valley

Attached are the Los Angeles Regional Water Quality Control Board (LARWQCB) forms you have requested for this project. Included are comments explaining any anomalous analytical events that may have occurred during the course of this project. Quanterra will support you in any discussions you have with the Board regarding the forms and data.

COMMENTS:

Duplicate reports associated with re-analyses due to necessary dilutions have the following Lab Sample ID naming: analysis at the lowest attainable dilution ends with '-SA' while the dilution analysis ends '-DL'. For example, a 1X run would be designated as 121123-0002-SA and a 5X run would be designated as 121123-0002-DL. Any detected concentrations above the calibration range in the lower dilution are flagged "E" for estimated concentration.

Sample 121123-0002 was analyzed without dilution by EPA method 8010 for all compounds except Tetrachloroethene (PCE) which exceeded the linear range. All QC data for PCE from the undiluted run were unused, including the method blank with PCE hit and LCS with unacceptable PCE percent recovery. The PCE concentration for this sample was determined from the 5X dilution run (121123-0002-DL) which had acceptable QC.

The 8010 MS had low percent recoveries for Ethyl benzene and Xylenes. The 8010 MSD had low percent recovery of Xylenes. The LCS data was within the 80-120 percent recovery limits.

All field quality control samples were batched with LCS and method blanks.

The requirement that 80% of the compounds meet criteria for continuing calibration was met.

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8260 REPORTING UNIT: UG/L

DATE ANALYZED		12 SEP 96			
DATE EXTRACTED		N/A			
LAB SAMPLE ID		121123-0003-FB			
CLIENT SAMPLE ID		FB-1			
EXTRACTION SOLVENT		N/A			
EXTRACTION METHOD		8260			
DILUTION FACTOR		1.0			
COMPOUND	CRDL				
Dichlorodifluoromethane	0.50	< 0.50			
Chloromethane	1.0	< 1.0			
Vinyl chloride	0.50	< 0.50			
Bromomethane	1.0	< 1.0			
Chloroethane	1.0	< 1.0			
Trichlorofluoromethane	1.0	< 1.0			
1,1-Dichloroethene	1.0	< 1.0			
Methylene chloride	1.0	< 1.0			
trans-1,2-Dichloroethene	1.0	< 1.0			
1,1-Dichloroethane	1.0	< 1.0			
2,2-Dichloropropane	1.0	< 1.0			
cis-1,2-Dichloroethene	1.0	< 1.0			
Chloroform	1.0	< 1.0			
Bromochloromethane	1.0	< 1.0			
1,1,1-Trichloroethane	1.0	< 1.0			
1,1-Dichloropropene	1.0	< 1.0			
Carbon tetrachloride	0.50	< 0.50			
1,2-Dichloroethane	0.50	< 0.50			
Benzene	0.50	< 0.50			
Trichloroethene	1.0	< 1.0			
1,2-Dichloropropane	1.0	< 1.0			
Bromodichloromethane	1.0	< 1.0			
Dibromomethane	1.0	< 1.0			
cis-1,3-Dichloropropene	0.50	< 0.50			
Toluene	1.0	< 1.0			
trans-1,3-Dichloropropene	0.50	< 0.50			
1,1,2-Trichloroethane	1.0	< 1.0			
1,2-Dibromoethane (EDB)	1.0	< 1.0			
1,3-Dichloropropane	1.0	< 1.0			
Tetrachloroethene	1.0	< 1.0			
Dibromochloromethane	1.0	< 1.0			
Chlorobenzene	1.0	< 1.0			
1,1,1,2-Tetrachloroethane	1.0	< 1.0			
Ethylbenzene	1.0	< 1.0			
Xylenes (total)	1.0	< 1.0			
Styrene	1.0	< 1.0			
Bromoform	1.0	< 1.0			
1-Methylethylbenzene	1.0	< 1.0			
1,1,2,2-Tetrachloroethane	1.0	< 1.0			
1,2,3-Trichloropropane	1.0	< 1.0			
n-Propylbenzene	1.0	< 1.0			
Bromobenzene	1.0	< 1.0			
1,3,5-Trimethylbenzene	1.0	< 1.0			
2-Chlorotoluene	1.0	< 1.0			
4-Chlorotoluene	1.0	< 1.0			
tert-Butylbenzene	1.0	< 1.0			
1,2,4-Trimethylbenzene	1.0	< 1.0			
sec-Butylbenzene	1.0	< 1.0			
Isopropyltoluene	1.0	< 1.0			
1,3-Dichlorobenzene	1.0	< 1.0			
1,4-Dichlorobenzene	1.0	< 1.0			
n-Butylbenzene	1.0	< 1.0			
1,2-Dichlorobenzene	1.0	< 1.0			

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8260 REPORTING UNIT: UG/L

DATE ANALYZED		12 SEP 96			
DATE EXTRACTED		N/A			
LAB SAMPLE ID		121123-0003-FB			
CLIENT SAMPLE ID		FB-1			
EXTRACTION SOLVENT		N/A			
EXTRACTION METHOD		8260			
DILUTION FACTOR		1.0			
COMPOUND	CRDL				
1,2-Dibromo-3-chloro-propane (DBCP)	1.0	< 1.0			
1,2,4-Trichlorobenzene	1.0	< 1.0			
Hexachlorobutadiene	1.0	< 1.0			
Naphthalene	1.0	< 1.0			
1,2,3-Trichlorobenzene	1.0	< 1.0			
Acetone	100	< 100			
2-Butanone (MEK)	100	< 100			
4-Methyl-2-pentanone (MIBK)	100	< 100			
2-Hexanone	100	< 100			
Acrolein	100	< 100			
Acrylonitrile	100	< 100			
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
1,2-Dichloroethane-d4	10	80-120	99			
Toluene-d8	10	88-110	100			
Bromofluorobenzene	10	86-115	90			

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8260 REPORTING UNIT: UG/L

DATE ANALYZED		12 SEP 96			
DATE EXTRACTED		N/A			
LAB SAMPLE ID		12 SEP 96-ACX 12 SEP 96-ACX			
CLIENT SAMPLE ID		METHOD BLANK			
EXTRACTION SOLVENT		N/A			
EXTRACTION METHOD		8260			
DILUTION FACTOR		1.0			
COMPOUND	CRDL				
Dichlorodifluoromethane	0.50	< 0.50			
Chloromethane	1.0	< 1.0			
Vinyl chloride	0.50	< 0.50			
Bromomethane	1.0	< 1.0			
Chloroethane	1.0	< 1.0			
Trichlorofluoromethane	1.0	< 1.0			
1,1-Dichloroethene	1.0	< 1.0			
Methylene chloride	1.0	< 1.0			
trans-1,2-Dichloroethene	1.0	< 1.0			
1,1-Dichloroethane	1.0	< 1.0			
2,2-Dichloropropane	1.0	< 1.0			
cis-1,2-Dichloroethene	1.0	< 1.0			
Chloroform	1.0	< 1.0			
Bromochloromethane	1.0	< 1.0			
1,1,1-Trichloroethane	1.0	< 1.0			
1,1-Dichloropropene	1.0	< 1.0			
Carbon tetrachloride	0.50	< 0.50			
1,2-Dichloroethane	0.50	< 0.50			
Benzene	0.50	< 0.50			
Trichloroethene	1.0	< 1.0			
1,2-Dichloropropane	1.0	< 1.0			
Bromodichloromethane	1.0	< 1.0			
Dibromomethane	1.0	< 1.0			
cis-1,3-Dichloropropene	0.50	< 0.50			
Toluene	1.0	< 1.0			
trans-1,3-Dichloropropene	0.50	< 0.50			
1,1,2-Trichloroethane	1.0	< 1.0			
1,2-Dibromoethane (EDB)	1.0	< 1.0			
1,3-Dichloropropane	1.0	< 1.0			
Tetrachloroethene	1.0	< 1.0			
Dibromochloromethane	1.0	< 1.0			
Chlorobenzene	1.0	< 1.0			
1,1,1,2-Tetrachloroethane	1.0	< 1.0			
Ethylbenzene	1.0	< 1.0			
Xylenes (total)	1.0	< 1.0			
Styrene	1.0	< 1.0			
Bromoform	1.0	< 1.0			
1-Methylethylbenzene	1.0	< 1.0			
1,1,2,2-Tetrachloroethane	1.0	< 1.0			
1,2,3-Trichloropropane	1.0	< 1.0			
n-Propylbenzene	1.0	< 1.0			
Bromobenzene	1.0	< 1.0			
1,3,5-Trimethylbenzene	1.0	< 1.0			
2-Chlorotoluene	1.0	< 1.0			
4-Chlorotoluene	1.0	< 1.0			
tert-Butylbenzene	1.0	< 1.0			
1,2,4-Trimethylbenzene	1.0	< 1.0			
sec-Butylbenzene	1.0	< 1.0			
Isopropyltoluene	1.0	< 1.0			
1,3-Dichlorobenzene	1.0	< 1.0			
1,4-Dichlorobenzene	1.0	< 1.0			
n-Butylbenzene	1.0	< 1.0			
1,2-Dichlorobenzene	1.0	< 1.0			

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8260 REPORTING UNIT: UG/L

DATE ANALYZED		12 SEP 96			
DATE EXTRACTED		N/A			
LAB SAMPLE ID		12 SEP 96-ACX 12 SEP 96-ACX			
CLIENT SAMPLE ID		METHOD BLANK			
EXTRACTION SOLVENT		N/A			
EXTRACTION METHOD		8260			
DILUTION FACTOR		1.0			
COMPOUND	CRDL				
1,2-Dibromo-3-chloro-propane (DBCP)	1.0	< 1.0			
1,2,4-Trichlorobenzene	1.0	< 1.0			
Hexachlorobutadiene	1.0	< 1.0			
Naphthalene	1.0	< 1.0			
1,2,3-Trichlorobenzene	1.0	< 1.0			
Acetone	100	< 100			
2-Butanone (MEK)	100	< 100			
4-Methyl-2-pentanone (MIBK)	100	< 100			
2-Hexanone	100	< 100			
Acrolein	100	< 100			
Acrylonitrile	100	< 100			
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
1,2-Dichloroethane-d4	10	80-120	92			
Toluene-d8	10	88-110	99			
Bromofluorobenzene	10	86-115	88			

QA/QC REPORT

I. Calibration Standard

(A). Initial Calibration **(See instrument printouts)**

Summary Raw Data

Level II

Project # 121123

Analysis: 8260_WHP_A

GC/MS VOLATILE INJECTION LOG

DATA CARTRIDGE : 4

DATE : 09/06/96AM

INSTRUMENT # : 6 E.M SET : 1960 TUNE FILE : M13F73C SEQUENCE FILE : C09061

DCS : SOIL : [ ] LIQUID : [ ] : [ ]

INJ. TIME	ANA-LYST	FILE I.D.	SAMPLE I.D.	A.S #	MAT RIX	SAMPLE USED	DILU TION	1ST I.S AREA	RUN OK?	DATA PROC?	RE-RUN	MS REF : COMMENTS :
9:29	DJB	CT297	50ng BFB			1μL						MSVOA 546-2
15:20	↓	CS379	1ppb 8260 A	1	L	25mL	1.0	81	✓			IS 558-2; SURR 557-4 STD 830-1
15:54	↓	380	25ppb 8260A	2	↓	↓	↓	77	✓			↓
16:28	↓	381	5	3	↓	↓	↓	75	✓			↓
17:02	↓	382	10	4	↓	↓	↓	76	✓			↓
17:35	↓	383	50	5	↓	↓	↓	74	✓			↓
18:09	↓	384	100	6	↓	↓	↓	123	✓			↓

TOTAL RUNS : [7] TOTAL QC RUNS : [1] TOTAL STD RUNS : [6]

TOTAL RERUNS NEEDED : [0] TOTAL SUCCESSFUL SAMPLE RUNS : [ ]

COMMENTS:

Minimum average response factors (RF) for SPCC compounds per SW8260A:

SPCC Compound	Minimum Avg. RF
Chloromethane	0.100
1,1-Dichloroethane	0.100
Chlorobenzene	0.300
Bromoform	0.100
1,1,2,2-Tetrachloroethane	0.300

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS379
Instrument ID : HP5970 C

Date Analyzed : 09/06/96
Time Analyzed : 15:20

		IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
	12 Hour Std	80634	8.87	128393	10.68	100491	16.47
	UPPER LIMIT	161268		256786		200982	
	LOWER LIMIT	40317		64196		50245	
	QUANT FILE NAME						
1	^CS380	76942	8.88	119041	10.68	97424	16.47
2	^CS381	74743	8.88	118430	10.69	87714	16.48
3	^CS382	75621	8.87	118225	10.69	87099	16.47
4	^CS383	74892	8.88	118086	10.69	84614	16.49
5	^CS384	77433	8.88	123581	10.69	87385	16.48
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

IS 1 = Pentafluorobenzene
IS 2 = 1,4-Difluorobenzene
IS 3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

* Value outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS379
Instrument ID : HP5970 C

Date Analyzed : 09/06/96
Time Analyzed : 15:20

		IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
	12 Hour Std	54003	21.39				
	UPPER LIMIT	108006					
	LOWER LIMIT	27001					
	QUANT FILE NAME						
1	^CS380	50329	21.40				
2	^CS381	51013	21.40				
3	^CS382	52627	21.41				
4	^CS383	52794	21.41				
5	^CS384	54537	21.39				
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30							

IS 4 = 1,4-Dichlorobenzene-d4
IS 5 =
IS 6 =

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

* Value outside of QC limits

HSL Compounds

Case No: Instrument ID: IC826L;ICAP9L

Contractor: Quanterra-CC826L+HSL Calibration Date: 09/06/96

Contract No: MC 8260-A 25 ML

Minimum $\overline{RF}$ for SPCC is .300 Maximum % RSD for CCC is 30.0%

Comp No.	Compound	Laboratory ID: >CS380 RF 1.00	>CS381 RF 5.00	>CS382 RF 10.00	>CS383 RF 50.00	>CS384 RF 100.00	$\overline{RF}$	% RSD	CCC	SPCC	
1)	Dichlorodifluoromethane	1.07808	1.0 385	1.05517	1.00541	.97637	1.04178	4.754			
2)	Chloromethane	.32294	.35714	.31408	.30383	.30 74	.32055	6.828		**	
3)	Vinyl Chloride	.43741	.44855	.42989	.43205	.42234	.43405	2.246	*		
4)	Bromomethane	.54109	.49013	.47578	.50240	.51018	.50392	4.866			
5)	Chloroethane	.28400	.28359	.27338	.28202	.28650	.28190	1.783			
6)	Trichlorofluoromethane	1.42471	1.37442	1.32697	1.28855	1.22641	1.32821	5.757			
7)	Acetone	.09966	.09764	.08996	.07928	.07006	.08732	14.353			(Conc=2.50,,,,)
8)	1,1,2-Trichlorotrifluoroethane	.87755	.84356	.80541	.77942	.76394	.81398	5.725			
9)	1,1-Dichloroethene	.58747	.52061	.50457	.50302	.50134	.52340	7.000	*		
10)	Methylene Chloride	.46916	.45009	.43538	.43076	.44002	.44506	3.423			
11)	Methyl(tert)butylether[MTBE]	.75427	.01405	.70089	.69520	.70182	.57325	54.691			
12)	Carbon Disulfide	1.38998	1.42991	1.40141	1.40292	1.49633	1.42411	3.016			(Conc=2.50,,,,)
13)	trans-1,2-Dichloroethene	.62306	.56757	.55393	.54068	.55887	.56882	5.598			
14)	1,1-Dichloroethane	1.02686	.97633	.94430	.93211	.95951	.96782	3.816		**	
15)	2,2-Dichloropropane	1.02376	.89108	.84358	.82610	.81331	.87957	9.758			
16)	cis-1,2-Dichloroethene	.56663	.51802	.50838	.51534	.52877	.52743	4.382			
17)	Chloroform	1.28457	1.22288	1.19448	1.16982	1.17008	1.20837	3.961	*		
18)	Bromochloromethane	.30992	.29573	.28987	.28414	.28660	.29325	3.505			
19)	1,1,1-Trichloroethane	1.21252	1.17178	1.12781	1.10989	1.08380	1.14116	4.484			
20)	Vinyl Acetate	.14503	.08812	.13162	.13362	.13446	.12657	17.474			(Conc=2.50,,,,)
21)	2-Butanone	.05729	.05759	.05435	.04643	.04260	.05165	13.117			(Conc=2.50,,,,)
22)	1,2-Dichloroethane-d4	.28110	.29551	.30724	.28205	.26289	.28576	5.842			(Conc=10.0,10.0,10.0,10.0,10
23)	1,1-Dichloropropene	.53453	.51337	.50876	.49454	.49333	.50891	3.296			
24)	Carbon Tetrachloride	.67885	.68035	.67555	.67142	.64857	.67095	1.934			
25)	1,2-Dichloroethane	.37338	.37323	.36612	.35569	.33853	.36139	4.061			
26)	Benzene	.85121	.79894	.79440	.77297	.79659	.80282	3.609			
27)	Trichloroethene	.46046	.45147	.44454	.42898	.43253	.44360	2.947			
28)	1,2-Dichloropropane	.29472	.29183	.27708	.27701	.28702	.28553	2.880	*		
29)	Bromodichloromethane	.62246	.63920	.62810	.62846	.61317	.62628	1.518			
30)	2-Chloroethylvinyl Ether	.04805	-	.06192	.07052	.01102	.04788	54.839			(Conc=2.50,,,,)
31)	Dibromomethane	.24028	.25546	.25423	.24636	.23933	.24713	3.055			
32)	cis-1,3-Dichloropropene	.40867	.40890	.41174	.42225	.41890	.41409	1.487			

F - Response Factor (Subscript is amount in UG/L)

$\overline{F}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

HSL Compounds

Case No: Instrument ID: IC826L;ICAP9L

Contractor: Quanterra-CC826L+HSL Calibration Date: 09/06/96

Contract No: MC 8260-A 25 ML

Minimum $\overline{RF}$ for SPCC is .300 Maximum % RSD for CCC is 30.0%

Comp No.	Compound	Laboratory ID: >CS380 RF 1.00	>CS381 RF 5.00	>CS382 RF 10.00	>CS383 RF 50.00	>CS384 RF 100.00	$\overline{RF}$	% RSD	CCC	SPCC	
33)	Toluene-d8	.88833	.88732	.90287	.88936	.89131	.89184	.711			{Conc=10.0,10.0,10.0,10.0,10
34)	Toluene	.59411	.57605	.56857	.56317	.56976	.57433	2.084	*		
35)	trans-1,3-Dichloropropene	.29869	.31603	.31738	.33474	.32685	.31874	4.246			
36)	1,1,2-Trichloroethane	.18521	.17610	.17413	.17167	.16983	.17539	3.413			
37)	1,2-Dibromoethane	.27665	.28648	.28454	.28388	.27787	.28189	1.543			
38)	p-Bromofluorobenzene	.56323	.55933	.57951	.57982	.59055	.57449	2.250			{Conc=10.0,10.0,10.0,10.0,10
39)	4-Methyl-2-pentanone	.03703	.04626	.05084	.05084	.05030	.04705	12.581			{Conc=2.50,,,,}
40)	2-Hexanone	.08811	.10486	.11230	.11549	.10547	.10525	10.061			{Conc=2.50,,,,}
41)	1,3-Dichloropropane	.42730	.42887	.43013	.43040	.43214	.42977	.420			
42)	Tetrachloroethene	.75619	.73637	.72795	.71030	.69972	.72611	3.048			
43)	Dibromochloromethane	.53875	.59427	.59027	.62992	.62194	.59503	6.019			
44)	Chlorobenzene	1.07512	1.05333	1.04247	1.05561	1.05399	1.05610	1.120		**	
45)	1,1,1,2-Tetrachloroethane	.53547	.56935	.57277	.57062	.54378	.55840	3.122			
46)	Ethylbenzene	1.67219	1.70625	1.71661	1.71256	1.70209	1.70194	1.031	*		
47)	m,p-Xylene	.62603	.64640	.63113	.65186	.63438	.63796	1.692			{Conc=2.00,10.0,20.0,100.0,2
48)	o-Xylene	.57050	.59081	.59357	.60019	.59521	.59006	1.941			
49)	Styrene	.87331	.93730	.94308	.98382	.99556	.94661	5.081			
50)	Bromoform	.25943	.30488	.31938	.34770	.34833	.31594	11.614		**	
51)	Isopropylbenzene	3.17593	3.02088	2.90001	2.81108	2.76656	2.93489	5.660			
52)	1,1,2,2-Tetrachloroethane	.59571	.57589	.52851	.52829	.53043	.55176	5.774		**	
53)	1,2,3-Trichloropropane	.14092	.15667	.15287	.14722	.14581	.14870	4.145			
54)	n-Propylbenzene	4.08181	3.99094	3.82661	3.75520	3.31271	3.79346	7.862			
55)	Bromobenzene	1.02161	.95776	.91829	.87788	.84366	.92384	7.515			
56)	1,3,5-Trimethylbenzene	2.95909	2.86300	2.74732	2.59731	2.44978	2.72330	7.489			
57)	2-Chlorotoluene	3.15408	2.92769	2.89828	2.57288	2.52141	2.81487	9.390			
58)	4-Chlorotoluene	3.09668	2.69296	2.46467	2.58837	2.42606	2.65375	10.139			
59)	tert-Butylbenzene	3.14075	2.92510	2.81101	2.67516	2.59356	2.82912	7.619			
60)	1,2,4-Trimethylbenzene	2.96835	2.85598	2.71807	2.60750	2.51011	2.73200	6.753			
61)	sec-Butylbenzene	4.22051	3.97773	3.84008	3.74995	3.41260	3.84018	7.753			
62)	p-Isopropyltoluene	3.34667	3.20926	3.11658	3.02424	2.89796	3.11894	5.503			
63)	1,3-Dichlorobenzene	1.83916	1.71611	1.61358	1.57494	1.58515	1.66579	6.717			
64)	1,4-Dichlorobenzene	1.84823	1.76112	1.67013	1.58782	1.56807	1.68707	6.998			

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

HSL Compounds

Case No: Instrument ID: IC826L;ICAP9L

Contractor: Quanterra-CC826L+HSL Calibration Date: 09/06/96

Contract No: MC 8260-A 25 ML

Minimum $\overline{RF}$ for SPCC is .300 Maximum % RSD for CCC is 30.0%

Comp No.	Compound	Laboratory ID: >CS380 RF 1.00	>CS381 RF 5.00	>CS382 RF 10.00	>CS383 RF 50.00	>CS384 RF 100.00	$\overline{RF}$	% RSD	CCC	SPCC
65)	n-Butylbenzene	3.27167	3.30735	3.15815	3.08093	2.93543	3.15071	4.772		
66)	1,2-Dichlorobenzene	1.54899	1.46112	1.40855	1.32004	1.31454	1.41065	7.012		
67)	1,2-Dibromo-3-chloropropane	.11036	.11311	.11582	.11600	.11529	.11412	2.097		
68)	1,2,4-Trichlorobenzene	1.21771	1.11031	1.08216	1.03430	1.00535	1.08997	7.545		
69)	Hexachlorobutadiene	1.11142	1.00680	.96658	.89297	.83427	.96241	11.074		
70)	Naphthalene	1.14864	1.00167	.99401	.96320	.94886	1.01128	7.890		
71)	1,2,3-Trichlorobenzene	1.02679	.91781	.88057	.82358	.79179	.88811	10.322		

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

GC/MS VOL LE INJECTION LOG

DATA CARTRIDGE : 4

DATE : 9/12/96

INSTRUMENT # : C E.M SET : 1960 TUNE FILE : MAFBC SEQUENCE FILE : C0912

DCS : SOIL : [ ] LIQUID : [ ] : [ ]

INJ. TIME	ANA-LYST	FILE I.D.	SAMPLE I.D.	A.S #	MATRIX	SAMPLE USED	DILUTION	1ST I.S AREA	RUN OK?	DATA PROC?	RE-RUN	MS REF : COMMENTS :
0851	GJ	CT307	SDNCBBB	—	L	1ml			✓			MSVOA 546-2
9:18	↓	CS396	10ppb 8260-L	1	↓	25ml	1.0	71	✓			IS 568-2 SU 565-1 SD 567
10:11		C 3981	10ppb APPIX	2		↓	↓	67	✓			APPIX 553-1;
10:45		82	LCS-8260-L	3				64	✓			QC 566-1
11:47		83	RB H2O	4				73	✓			
12:48		84	121006-3	5				74	✓			PVLZ ANCHORAGE MONT WAT
13:22		85	120961-2	6		↓	↓	139	N		V	DOUBLE SPIKE
13:56		86	↓ -1	7		1ml	25	66	✓			
14:30		87	121006-1	8		25ml	1.0	69	✓			
15:04		88	↓ -2	9		↓	↓	60	✓			↓
15:38		89	121149-1	10		25ml	1.0	68	✓			ROCKWELL
16:12		90	121094-1	11				59	✓			ENVIRON
16:46	↓	91	↓ -2	12				65	✓			↓
17:20	AD	92	120961-2	13				67	✓			MONT WATSON
17:54		93	121149-2	14				68	✓			ROCKWELL
18:28		94	121102-1	15				68	✓			HILL OUI/OU 8
19:02		95	↓ -3	16				66	✓			↓
19:36		96	↓ -2	1				67	✓			↓
20:10	↓	97	121123-3	2	↓	↓	↓	64	✓			GEM

TOTAL RUNS : [18] TOTAL QC RUNS : [4] TOTAL STD RUNS : [1]

TOTAL RERUNS NEEDED : [1] TOTAL SUCCESSFUL SAMPLE RUNS : [13]

COMMENTS:

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS396
Instrument ID : HP5970 C

Date Analyzed : 09/12/96
Time Analyzed : 09:18

	QUANT FILE NAME	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
	12 Hour Std	70920	8.88	104832	10.68	72272	16.46
	UPPER LIMIT	141840		209664		144544	
	LOWER LIMIT	35460		52416		36136	
1	^C3981	67498	8.88	102086	10.69	72003	16.47
2	^C3982	63716	8.87	93282	10.68	64711	16.47
3	^C3983	72620	8.86	113373	10.68	80768	16.46
4	^C3984	74368	8.87	114884	10.68	82012	16.46
5	^C3985	139426	8.87	213817*	10.67	154100*	16.47
6	^C3986	66009	8.87	101536	10.67	73418	16.47
7	^C3987	68742	8.87	101394	10.67	73859	16.46
8	^C3988	60450	8.88	89981	10.69	64701	16.47
9	^C3989	67627	8.87	98318	10.69	71748	16.47
10	^C3990	58882	8.89	88850	10.68	64817	16.47
11	^C3991	65304	8.88	97495	10.69	68588	16.48
12	^C3992	66825	8.88	97980	10.69	70187	16.47
13	^C3993	67706	8.88	100188	10.69	72740	16.47
14	^C3994	68083	8.88	99645	10.69	70900	16.47
15	^C3995	66405	8.87	97880	10.69	69934	16.47
16	^C3996	66807	8.87	98694	10.69	72275	16.47
17	^C3997	64353	8.88	94426	10.69	67793	16.48
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IS 1 = Pentafluorobenzene
IS 2 = 1,4-Difluorobenzene
IS 3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

* Value outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS396
Instrument ID : HP5970 C

Date Analyzed : 09/12/96
Time Analyzed : 09:18

	QUANT FILE NAME	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
	12 Hour Std	40591	21.38				
	UPPER LIMIT	81182					
	LOWER LIMIT	20296					
1	^C3981	39493	21.39				
2	^C3982	37624	21.40				
3	^C3983	42341	21.39				
4	^C3984	42620	21.38				
5	^C3985	83909*	21.38				
6	^C3986	38770	21.38				
7	^C3987	38968	21.38				
8	^C3988	34662	21.39				
9	^C3989	37986	21.38				
10	^C3990	33178	21.39				
11	^C3991	33690	21.39				
12	^C3992	37527	21.40				
13	^C3993	38215	21.38				
14	^C3994	37449	21.39				
15	^C3995	37436	21.38				
16	^C3996	38060	21.39				
17	^C3997	36763	21.41				
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IS 4 = 1,4-Dichlorobenzene-d4
IS 5 =
IS 6 =

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

* Value outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS395
Instrument ID : HP5970 C

Date Analyzed : 09/11/96
Time Analyzed : 21:00

	QUANT FILE NAME	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
	12 Hour Std	72753	8.88	113623	10.70	79326	16.48
	UPPER LIMIT	145506		227246		158652	
	LOWER LIMIT	36376		56811		39663	
1	^CS396	70920	8.88	104832	10.68	72272	16.46
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IS 1 = Pentafluorobenzene
IS 2 = 1,4-Difluorobenzene
IS 3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

* Value outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
Quanterra - Southern California

Check Standard : ^CS395
Instrument ID : HP5970 C

Date Analyzed : 09/11/96
Time Analyzed : 21:00

		IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
	12 Hour Std	45306	21.38				
	UPPER LIMIT	90612					
	LOWER LIMIT	22653					
	QUANT FILE NAME						
1	^CS396	40591	21.38				
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IS 4 = 1,4-Dichlorobenzene-d4
IS 5 =
IS 6 =

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area

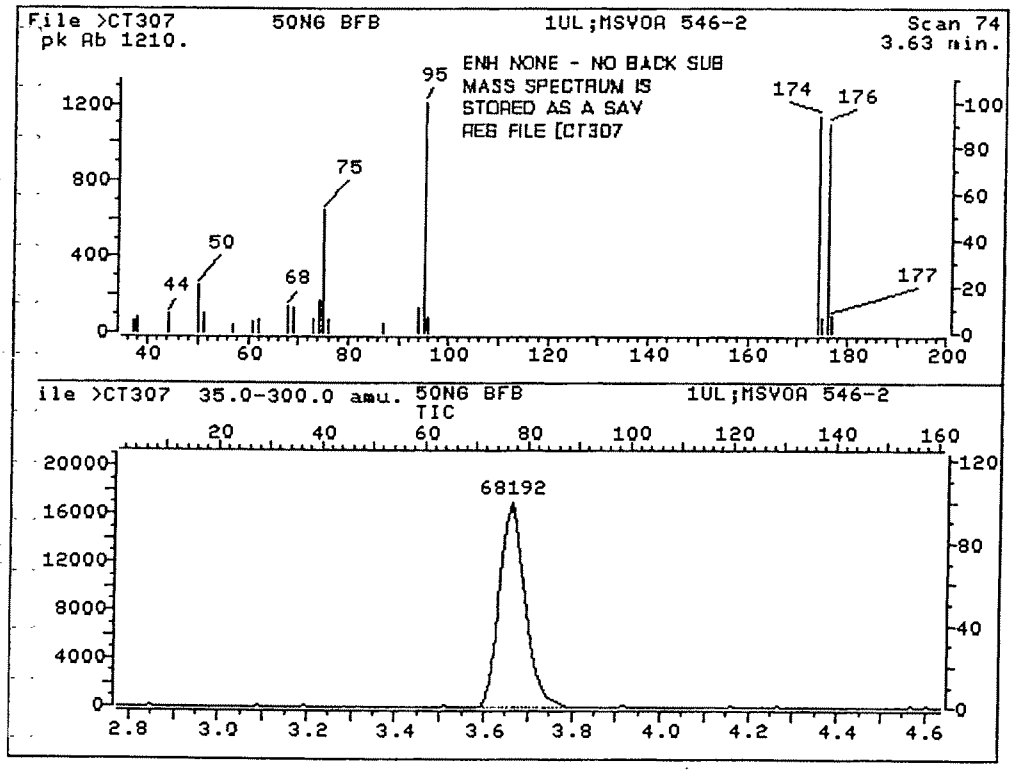
* Value outside of QC limits

GC/MS PERFORMANCE STANDARD

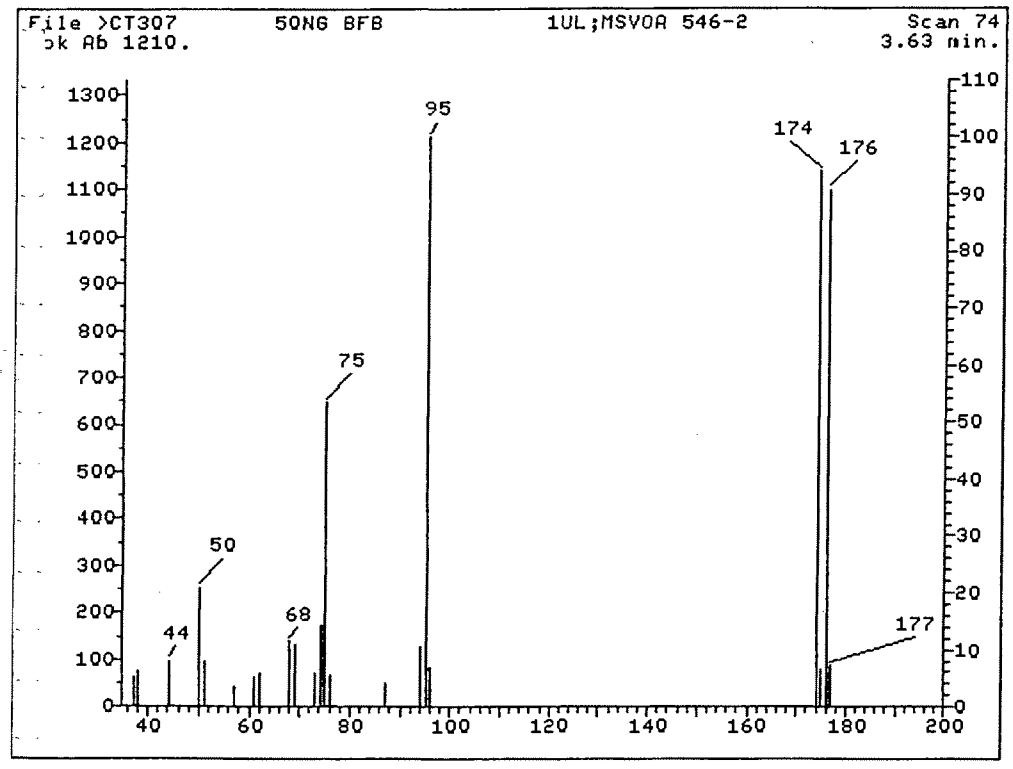
Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	20.74	20.74	Ok
75	30-60% of mass 95	53.39	53.39	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.86	6.86	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	93.88	93.88	Ok
175	5-9% of mass 174	6.53	6.95	Ok
176	95-101% of mass 174	90.66	96.57	Ok
177	5-9% of mass 176	7.11	7.84	Ok

Injection Date: 09/12/96
Injection Time: 08:51
Data File: >CT307
Scan: 74



Peak R.T. first max last peak raw corr. corr. % of
Instrument ID: HP5970 Analyzed on: 9/12/96 8:51 max. total



Instrument ID: HP5970 Analyzed on: 9/12/96 8:51

>CT307 50NG BFB 1UL;MSVOA 546-2

74 NRM

File: >CT307 Scan #: 74 Retn. time: 3.63

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.15	5.207	57.05	3.471	73.15	5.868	94.10	10.413	175.05	6.529
38.15	6.116	61.15	5.124	74.15	14.298	95.10	100.000	176.05	90.661
44.05	7.934	62.15	5.868	75.15	53.388	96.10	6.860	177.05	7.107
50.15	20.744	68.15	11.405	76.15	5.372	174.05	93.884	207.10	3.140
51.15	7.851	69.05	10.992	87.10	4.132				

Instrument ID: HP5970 Analyzed on: 9/12/96 8:51

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 09/12/96

Contractor: Quanterra-CC826L+HSL Time: 09:18

Contract No: MC 8260-A 25 ML Laboratory ID: >CS396

Instrument ID: IC826L;ICAP9L Initial Calibration Date: 09/06/96

Minimum $\overline{RF}$ for SPCC is .300 Maximum % Diff for CCC is 20.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Dichlorodifluoromethane	1.04178	1.01674	2.40		
Chloromethane	.32055	.34329	7.09		**
Vinyl Chloride	.43405	.43907	1.16	*	
Bromomethane	.50392	.44123	12.44		
Chloroethane	.28190	.29303	3.95		
Trichlorofluoromethane	1.32821	1.37779	3.73		
Acetone	.08732	.05331	38.94		
1,1,2-Trichlorotrifluoroethane	.81398	.91032	11.84		
1,1-Dichloroethene	.52340	.52823	.92	*	
Methylene Chloride	.44506	.42572	4.35		
Methyl(tert)butylether[MTBE]	.57325	.68139	18.86		
Carbon Disulfide	1.42411	1.46279	2.72		
trans-1,2-Dichloroethene	.56882	.56695	.33		
1,1-Dichloroethane	.96782	.92923	3.99		**
2,2-Dichloropropane	.87957	.99370	12.98		
cis-1,2-Dichloroethene	.52743	.50814	3.66		
Chloroform	1.20837	1.12503	6.90	*	
Bromochloromethane	.29325	.25622	12.63		
1,1,1-Trichloroethane	1.14116	1.11647	2.16		
Vinyl Acetate	.12657	.13184	4.16		
2-Butanone	.05165	.03251	37.06		
1,2-Dichloroethane-d4	.28576	.28308	.94		
1,1-Dichloropropene	.50891	.52119	2.41		
Carbon Tetrachloride	.67095	.72283	7.73		
1,2-Dichloroethane	.36139	.34447	4.68		
Benzene	.80282	.78954	1.65		
Trichloroethene	.44360	.43238	2.53		
1,2-Dichloropropane	.28553	.26211	8.21	*	
Bromodichloromethane	.62628	.59436	5.10		
2-Chloroethylvinyl Ether	.04788	.05667	18.36		
Dibromomethane	.24713	.22916	7.27		
cis-1,3-Dichloropropene	.41409	.37756	8.82		

RF - Response Factor from daily standard file at 10.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 09/12/96

Contractor: Quanterra-CC826L+HSL Time: 09:18

Contract No: MC 8260-A 25 ML Laboratory ID: >CS396

Instrument ID: IC826L;ICAP9L Initial Calibration Date: 09/06/96

Minimum $\overline{RF}$ for SPCC is .300 Maximum % Diff for CCC is 20.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Toluene-d8	.89184	.86675	2.81			
Toluene	.57433	.55380	3.57	*		
trans-1,3-Dichloropropene	.31874	.28191	11.55			
1,1,2-Trichloroethane	.17539	.15099	13.91			
1,2-Dibromoethane	.28189	.24409	13.41			
p-Bromofluorobenzene	.57449	.51793	9.84			
4-Methyl-2-pentanone	.04705	.03913	16.84			
2-Hexanone	.10525	.07796	25.93			
1,3-Dichloropropane	.42977	.40836	4.98			
Tetrachloroethene	.72611	.76781	5.74			
Dibromochloromethane	.59503	.57321	3.67			
Chlorobenzene	1.05610	1.04897	.68		**	
1,1,1,2-Tetrachloroethane	.55840	.56909	1.91			
Ethylbenzene	1.70194	1.78580	4.93	*		
m,p-Xylene	.63796	.65421	2.55			(Conc=20.00)
o-Xylene	.59006	.60033	1.74			
Styrene	.94661	.91968	2.85			
Bromoform	.31594	.29368	7.05		**	
Isopropylbenzene	2.93489	3.18487	8.52			
1,1,2,2-Tetrachloroethane	.55176	.51997	5.76		**	
1,2,3-Trichloropropane	.14870	.15380	3.43			
n-Propylbenzene	3.79346	4.24412	11.88			
Bromobenzene	.92384	.91594	.85			
1,3,5-Trimethylbenzene	2.72330	2.97100	9.10			
2-Chlorotoluene	2.81487	3.06398	8.85			
4-Chlorotoluene	2.65375	2.71388	2.27			
tert-Butylbenzene	2.82912	3.04466	7.62			
1,2,4-Trimethylbenzene	2.73200	2.93333	7.37			
sec-Butylbenzene	3.84018	4.18859	9.07			
p-Isopropyltoluene	3.11894	3.38868	8.65			
1,3-Dichlorobenzene	1.66579	1.67177	.36			
1,4-Dichlorobenzene	1.68707	1.68712	.00			

RF - Response Factor from daily standard file at 10.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 09/12/96

Contractor: Quanterra-CC826L+HSL Time: 09:18

Contract No: MC 8260-A 25 ML Laboratory ID: >CS396

Instrument ID: IC826L;ICAP9L Initial Calibration Date: 09/06/96

Minimum $\overline{RF}$ for SPCC is .300 Maximum % Diff for CCC is 20.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
n-Butylbenzene	3.15071	3.48023	10.46		
1,2-Dichlorobenzene	1.41065	1.38809	1.60		
1,2-Dibromo-3-chloropropane	.11412	.10138	11.16		
1,2,4-Trichlorobenzene	1.08997	1.03725	4.84		
Hexachlorobutadiene	.96241	1.04040	8.10		
Naphthalene	1.01128	.85985	14.97		
1,2,3-Trichlorobenzene	.88811	.82580	7.02		

RF - Response Factor from daily standard file at 10.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 12 SEP 96
SUPPLY SOURCE: ULTRA
LOT NUMBER: J-1141
DATE OF SOURCE: 06/13/96

ANALYTICAL METHOD: 8260
LAB LCS I.D.: 12 SEP 96-ACX 12 SEP 96-ACX

UNIT: ug/L

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
1,1-Dichloroethene	10.0	9.83	98	80-120
1,1-Dichloroethane	10.0	9.74	97	80-120
Chloroform	10.0	9.69	97	80-120
1,2-Dichloroethane	10.0	10.3	100	80-120
Benzene	10.0	10.1	101	80-120
Trichloroethene	10.0	10.1	101	80-120
Toluene	10.0	9.90	99	80-120
Tetrachloroethene	10.0	10.6	110	80-120

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8010 REPORTING UNIT: UG/KG

DATE ANALYZED		13 SEP 96	11 SEP 96	12 SEP 96	
DATE EXTRACTED		N/A	N/A	N/A	
LAB SAMPLE ID		121123-0001-SA	121123-0002-SA	121123-0002-DL	
CLIENT SAMPLE ID		G4-5	G5-7	G5-7	
EXTRACTION SOLVENT		N/A	N/A	N/A	
EXTRACTION METHOD		SW5030	SW5030	SW5030	
DILUTION FACTOR		1.0	1.0	5.0	
COMPOUND	CRDL				
Dichlorodifluoromethane	1.0	< 1.0	< 1.0	< 5.0	
Chloromethane	2.0	< 2.0	< 2.0	< 10	
Bromomethane	2.0	< 2.0	< 2.0	< 10	
Vinyl chloride	1.0	< 1.0	< 1.0	< 5.0	
Chloroethane	2.0	< 2.0	< 2.0	< 10	
Methylene chloride	2.0	< 2.0	< 2.0	< 10	
Trichlorofluoromethane	2.0	< 2.0	< 2.0	< 10	
1,1-Dichloroethene	2.0	< 2.0	< 2.0	< 10	
1,1-Dichloroethane	2.0	< 2.0	< 2.0	< 10	
trans-1,2-Dichloroethene	2.0	< 2.0	< 2.0	< 10	
cis-1,2-Dichloroethene	2.0	< 2.0	< 2.0	< 10	
Chloroform	2.0	< 2.0	< 2.0	< 10	
1,2-Dichloroethane	1.0	< 1.0	< 1.0	< 5.0	
1,1,1-Trichloroethane	2.0	< 2.0	< 2.0	< 10	
Carbon tetrachloride	1.0	< 1.0	< 1.0	< 5.0	
Bromodichloromethane	2.0	< 2.0	< 2.0	< 10	
1,2-Dichloropropane	2.0	< 2.0	< 2.0	< 10	
cis-1,3-Dichloropropene	1.0	< 1.0	< 1.0	< 5.0	
Trichloroethene	2.0	< 2.0	< 2.0	< 10	
Dibromochloromethane	2.0	< 2.0	< 2.0	< 10	
1,1,2-Trichloroethane	2.0	< 2.0	< 2.0	< 10	
trans-1,3-Dichloropropene	1.0	< 1.0	< 1.0	< 5.0	
2-Chloroethyl vinyl ether	2.0	< 2.0	< 2.0	< 10	
Bromoform	2.0	< 2.0	< 2.0	< 10	
Tetrachloroethene	2.0	14	89 E	75	
1,1,1,2-Tetrachloroethane	2.0	< 2.0	< 2.0	< 10	
1,1,2,2-Tetrachloroethane	2.0	< 2.0	< 2.0	< 10	
Chlorobenzene	2.0	< 2.0	< 2.0	< 10	
1,3-Dichlorobenzene	2.0	< 2.0	< 2.0	< 10	
1,2-Dichlorobenzene	2.0	< 2.0	< 2.0	< 10	
1,4-Dichlorobenzene	2.0	< 2.0	< 2.0	< 10	
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	11-113	97	51	78	

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8010 REPORTING UNIT: UG/L

DATE ANALYZED			11 SEP 96	11 SEP 96		
DATE EXTRACTED			N/A	N/A		
LAB SAMPLE ID			121123-0004-EB	121123-0005-TB		
CLIENT SAMPLE ID			EB-1	TB-1		
EXTRACTION SOLVENT			N/A	N/A		
EXTRACTION METHOD			SW5030	SW5030		
DILUTION FACTOR			1.0	1.0		
COMPOUND		CRDL				
Dichlorodifluoromethane		0.50	< 0.50	< 0.50		
Chloromethane		1.0	< 1.0	< 1.0		
Bromomethane		1.0	< 1.0	< 1.0		
Vinyl chloride		0.50	< 0.50	< 0.50		
Chloroethane		1.0	< 1.0	< 1.0		
Methylene chloride		1.0	< 1.0	< 1.0		
Trichlorofluoromethane		1.0	< 1.0	< 1.0		
1,1-Dichloroethene		1.0	< 1.0	< 1.0		
1,1-Dichloroethane		1.0	< 1.0	< 1.0		
trans-1,2-Dichloroethene		1.0	< 1.0	< 1.0		
cis-1,2-Dichloroethene		1.0	< 1.0	< 1.0		
Chloroform		1.0	< 1.0	< 1.0		
1,2-Dichloroethane		0.50	< 0.50	< 0.50		
1,1,1-Trichloroethane		1.0	< 1.0	< 1.0		
Carbon tetrachloride		0.50	< 0.50	< 0.50		
Bromodichloromethane		1.0	< 1.0	< 1.0		
1,2-Dichloropropane		1.0	< 1.0	< 1.0		
cis-1,3-Dichloropropene		0.50	< 0.50	< 0.50		
Trichloroethene		1.0	< 1.0	< 1.0		
Dibromochloromethane		1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane		1.0	< 1.0	< 1.0		
trans-1,3-Dichloropropene		0.50	< 0.50	< 0.50		
2-Chloroethyl vinyl ether		1.0	< 1.0	< 1.0		
Bromoform		1.0	< 1.0	< 1.0		
Tetrachloroethene		1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane		1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane		1.0	< 1.0	< 1.0		
Chlorobenzene		1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene		1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene		1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene		1.0	< 1.0	< 1.0		
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	31-125	88	90		

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8010

REPORTING UNIT: UG/L

DATE ANALYZED		10 SEP 96			
DATE EXTRACTED		N/A			
LAB SAMPLE ID		10 SEP 96-AFX 10 SEP 96-AFX			
CLIENT SAMPLE ID		METHOD BLANK			
EXTRACTION SOLVENT		N/A			
EXTRACTION METHOD		SW5030			
DILUTION FACTOR		1.0			
COMPOUND	CRDL				
Dichlorodifluoromethane	0.50	< 0.50			
Chloromethane	1.0	< 1.0			
Bromomethane	1.0	< 1.0			
Vinyl chloride	0.50	< 0.50			
Chloroethane	1.0	< 1.0			
Methylene chloride	1.0	< 1.0			
Trichlorofluoromethane	1.0	< 1.0			
1,1-Dichloroethene	1.0	< 1.0			
1,1-Dichloroethane	1.0	< 1.0			
trans-1,2-Dichloroethene	1.0	< 1.0			
cis-1,2-Dichloroethene	1.0	< 1.0			
Chloroform	1.0	< 1.0			
1,2-Dichloroethane	0.50	< 0.50			
1,1,1-Trichloroethane	1.0	< 1.0			
Carbon tetrachloride	0.50	< 0.50			
Bromodichloromethane	1.0	< 1.0			
1,2-Dichloropropane	1.0	< 1.0			
cis-1,3-Dichloropropene	0.50	< 0.50			
Trichloroethene	1.0	< 1.0			
Dibromochloromethane	1.0	< 1.0			
1,1,2-Trichloroethane	1.0	< 1.0			
trans-1,3-Dichloropropene	0.50	< 0.50			
2-Chloroethyl vinyl ether	1.0	< 1.0			
Bromoform	1.0	< 1.0			
Tetrachloroethene	1.0	< 1.0			
1,1,1,2-Tetrachloroethane	1.0	< 1.0			
1,1,2,2-Tetrachloroethane	1.0	< 1.0			
Chlorobenzene	1.0	< 1.0			
1,3-Dichlorobenzene	1.0	< 1.0			
1,2-Dichlorobenzene	1.0	< 1.0			
1,4-Dichlorobenzene	1.0	< 1.0			
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	29-130	94			

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8010 REPORTING UNIT: UG/KG

DATE ANALYZED			12-SEP 96	11 SEP 96		
DATE EXTRACTED			N/A	N/A		
LAB SAMPLE ID			12 SEP 96-AFX 12 SEP 96-AFX	12 SEP 96-AFX 11 SEP 96-AFX		
CLIENT SAMPLE ID			METHOD BLANK	METHOD BLANK		
EXTRACTION SOLVENT			N/A	N/A		
EXTRACTION METHOD			SW5030	SW5030		
DILUTION FACTOR			1.0	1.0		
COMPOUND		CRDL				
Dichlorodifluoromethane		1.0	< 1.0	< 1.0		
Chloromethane		2.0	< 2.0	< 2.0		
Bromomethane		2.0	< 2.0	< 2.0		
Vinyl chloride		1.0	< 1.0	< 1.0		
Chloroethane		2.0	< 2.0	< 2.0		
Methylene chloride		2.0	< 2.0	< 2.0		
Trichlorofluoromethane		2.0	< 2.0	< 2.0		
1,1-Dichloroethene		2.0	< 2.0	< 2.0		
1,1-Dichloroethane		2.0	< 2.0	< 2.0		
trans-1,2-Dichloroethene		2.0	< 2.0	< 2.0		
cis-1,2-Dichloroethene		2.0	< 2.0	< 2.0		
Chloroform		2.0	< 2.0	< 2.0		
1,2-Dichloroethane		1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane		2.0	< 2.0	< 2.0		
Carbon tetrachloride		1.0	< 1.0	< 1.0		
Bromodichloromethane		2.0	< 2.0	< 2.0		
1,2-Dichloropropane		2.0	< 2.0	< 2.0		
cis-1,3-Dichloropropene		1.0	< 1.0	< 1.0		
Trichloroethene		2.0	< 2.0	< 2.0		
Dibromochloromethane		2.0	< 2.0	< 2.0		
1,1,2-Trichloroethane		2.0	< 2.0	< 2.0		
trans-1,3-Dichloropropene		1.0	< 1.0	< 1.0		
2-Chloroethyl vinyl ether		2.0	< 2.0	< 2.0		
Bromoform		2.0	< 2.0	< 2.0		
Tetrachloroethene		2.0	< 2.0	2.9		
1,1,1,2-Tetrachloroethane		2.0	< 2.0	< 2.0		
1,1,2,2-Tetrachloroethane		2.0	< 2.0	< 2.0		
Chlorobenzene		2.0	< 2.0	< 2.0		
1,3-Dichlorobenzene		2.0	< 2.0	< 2.0		
1,2-Dichlorobenzene		2.0	< 2.0	< 2.0		
1,4-Dichlorobenzene		2.0	< 2.0	< 2.0		
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	19-134	92	ND		

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8020 REPORTING UNIT: UG/KG

DATE ANALYZED			11 SEP 96	11 SEP 96		
DATE EXTRACTED			N/A	N/A		
LAB SAMPLE ID			121123-0001-SA	121123-0002-SA		
CLIENT SAMPLE ID			G4-5	G5-7		
EXTRACTION SOLVENT			8020-S	8020-S		
EXTRACTION METHOD			SW5030	SW5030		
DILUTION FACTOR			1.0	1.0		
COMPOUND		CRDL				
Benzene		1.0	< 1.0	< 1.0		
Toluene		2.0	< 2.0	< 2.0		
Chlorobenzene		2.0	< 2.0	< 2.0		
Ethylbenzene		2.0	< 2.0	< 2.0		
Xylenes (total)		2.0	< 2.0	< 2.0		
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	30-137	30	57		

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8020 REPORTING UNIT: UG/L

DATE ANALYZED			11 SEP 96	11 SEP 96		
DATE EXTRACTED			N/A	N/A		
LAB SAMPLE ID			121123-0004-EB	121123-0005-TB		
CLIENT SAMPLE ID			EB-1	TB-1		
EXTRACTION SOLVENT			N/A	N/A		
EXTRACTION METHOD			SW5030	SW5030		
DILUTION FACTOR			1.0	1.0		
COMPOUND		CRDL				
Benzene		0.50	< 0.50	< 0.50		
Toluene		0.50	< 0.50	< 0.50		
Chlorobenzene		0.50	< 0.50	< 0.50		
Ethylbenzene		0.50	< 0.50	< 0.50		
Xylenes (total)		1.0	< 1.0	< 1.0		
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	29-137	96	96		

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8020 REPORTING UNIT: UG/L

DATE ANALYZED			10 SEP 96			
DATE EXTRACTED			N/A			
LAB SAMPLE ID			10 SEP 96-AFX 10 SEP 96-AFX			
CLIENT SAMPLE ID			METHOD BLANK			
EXTRACTION SOLVENT			N/A			
EXTRACTION METHOD			SW5030			
DILUTION FACTOR			1.0			
COMPOUND		CRDL				
Benzene		0.50	< 0.50			
Toluene		0.50	< 0.50			
Chlorobenzene		0.50	< 0.50			
Ethylbenzene		0.50	< 0.50			
Xylenes (total)		1.0	< 1.0			
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	29-137	102			

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: 8020

REPORTING UNIT: UG/KG

DATE ANALYZED			11 SEP 96			
DATE EXTRACTED			N/A			
LAB SAMPLE ID			11 SEP 96-AFX 11 SEP 96-AFX			
CLIENT SAMPLE ID			METHOD BLANK			
EXTRACTION SOLVENT			8020-S			
EXTRACTION METHOD			SW5030			
DILUTION FACTOR			1.0			
COMPOUND		CRDL				
Benzene		1.0	< 1.0			
Toluene		2.0	< 2.0			
Chlorobenzene		2.0	< 2.0			
Ethylbenzene		2.0	< 2.0			
Xylenes (total)		2.0	< 2.0			
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
Bromofluorobenzene	20	30-137	93			

QA/QC REPORT

I. Calibration Standard

(A). Initial Calibration **(See instrument printouts)**

GERAGHT + MILLER

[redacted] SUMMARY RAW DATA PACKAGE

GC DEPARTMENT

PROJECT# 121123

TEST: 8010/8020

PACKAGE INCLUDES:

INITIAL CALIBRATION SUMMARY
CONTINUING CALIBRATION SUMMARY
INJECTION LOG
SAMPLE PREPARATION LOG(IF APPLICABLE)

INSTRUMENT RUNLOGS

TEST: 8010/8020

INJECTION LOG/ INSTRUMENT ID: VF

CALIBRATION ID: VF091096

CAL. STD. ID.: GCVOA 30-2 ; GCVOA 26-2 (MTBE) ; GCVOA 24-2 (1112 TCA)
QC. STD. ID.: GCVOA 30-1
SURR.STD. ID.: GCVOA 27-1

TIME	DATE	SLOT	FILE #	SAMPLE #	TEST 8010	TEST 8020	VOL / WT	DIL	YES/NO 8010	YES/NO 8020	COMMENT	PH <2	INIT
	9/10/96	8	A/B.254 -001	1 ppb std	✓	✓			Y	Y	Calibration		RW
		9	-002	4 ppb Std	✓	✓			Y	Y			
		10	-003	10 ppb Std	✓	✓			Y	Y			
		11	-004	20 ppb Std	✓	✓			Y	Y			
		12	-005	40 ppb std	✓	✓			Y	Y			
12:56		13	-006	MB-L	✓	✓			Y	Y	091096AF		
13:55		14	-007	LCS-L	✓	✓			Y	Y			
14:54		15	-008	LCD-L	✓	✓			Y	Y			
15:53		16	-009	120890-1	✓		5mL	1X	Y		ND	Y	
16:52		1	-010	-1 MS	✓				Y				
17:51		2	-011	-1 MSD	✓				Y				
18:49		3	-012	-2	✓				Y		Needs Confirm.		
19:48		4	-013	-3	✓				Y		ND		
20:46		5	-014	-4	✓		5mL Hobbs	1X ~~50X~~	Y		ND		
21:44		6	-015	120912-4		✓	100mL 8	50X		N	Needs dilution		
23:08		7	-016	10 ppb Std	✓	✓			N	Y			RS
00:05	9/11/96	8	-017	10 ppb Std	✓	✓			Y	–			
01:03		9	-018	121123-4	✓	✓	5mL	1X	Y	Y	ND		RW
02:01		10	-019	-5	✓	✓			Y	Y	ND		
02:59		11	-020	MB-S	✓	✓			N	Y	8010 PCE Contamination 091196AFX		
03:57		12	-021	LCS-S	✓	✓			N	Y			
04:54		13	-022	121123-1	✓	✓	5g	1X	N	Y	ND		RS
05:52		14	-023	-1 MS	✓	✓			N	Y			
06:50		15	-024	-1 MSD	✓	✓			N	Y			

INJECTION LOG/ INSTRUMENT ID:VF

CALIBRATION ID: VF091096

CAL. STD. ID.: GC VOA 30-2 ; GC VOA 26-2 (MTBE) ; GC VOA 24-2 (1112-TCA)
QC. STD. ID.: GC VOA 30-1
SURR.STD. ID.: GC VOA 27-1

TIME	DATE	SLOT	FILE #	SAMPLE #	TEST 8010	TEST 8020	VOL / WT	DIL	YES/NO 8010	YES/NO 8020	COMMENT	PH < 2	INIT
07:47	9/11/96	16	A/B-254 -025	121123-2	✓	✓	5g	1X	N	Y	ND		PS
08:52		1	-026	120912-4		✓	50mL	100X		Y	Needs Confirm.	Y	
09:56		2	-027	124084-1		✓	5mL	1X		Y	ND	↓	
10:54		3	-028	10ppb std	✓	✓			N	Y			
11:52		4	-029	10ppb std	✓	✓			N	-			
13:14		5	-030	124084-2		✓	5mL	1X		Y	ND	Y	
14:13		6	-031	10ppb Std	✓	✓			N	Y			
15:54		7	-032	MB-L	✓				Y		091196AF		PS
16:52		8	-033	LCS-L	✓				Y		↓		
17:50		9	-034	LCD-L	✓				N		poor recoveries		
19:29		10	-035	120952-14	✓		5mL	1X	N	•	Contaminated	Y	
22:26		11	-036	-14	✓		↓	↓	Y•			↓	
23:23	↓	12	-037	10ppb Std	✓				N				

INJECTION LOG/ INSTRUMENT ID: VF

CALIBRATION ID: VF091296

CAL. STD. ID.: GC VOA 30-2
QC. STD. ID.: GC VOA 30-1
SURR.STD. ID.: GC VOA 27-2

TIME	DATE	SLOT	FILE #	SAMPLE #	TEST 8010	TEST 8020	VOL/WT	DIL	YES/NO 8010	YES/NO 8020	COMMENT	PH<2	INIT
	9/12/96	8	A/B-256 -001	1 ppb Std	✓	✓			Y	Y	Calibration		PS
		9	-002	4 ppb Std	✓	✓			Y	Y			
		10	-003	10 20 ppb Std	✓	✓			Y	Y			
		11	-004	20 ppb Std	✓	✓			Y	Y			
		12	-005	40 ppb Std	✓	✓			Y	Y			
		13	-006	blank									
07:14		14	-007	MB-L	✓	✓			Y	Y	091296AF		RW
08:12		15	-008	LCS-L	✓	✓			Y	Y			
09:10		16	-009	LCD-L	✓				Y				
10:08		1	-00	120952-16	✓		5mL	1X	Y			Y	
11:06		2	-011	-18	✓		↓	↓	Y			↓	
12:04		3	-012	MB-S	✓				Y		091296AFX		
13:02		4	-013	LCS-S	✓				Y				
14:00		5	-014	121016-1	✓		Sg	1X	Y		ND		
14:58		6	-015	-2	✓		1g	5X	N		Too dilute rerun at 5g		
15:56		7	-016	-3	✓		Sg	1X	Y		ND		
17:12		8	-017	10 ppb Std	✓	✓			N	Y			
18:10		9	-018	10 ppb Std	✓	✓			Y	-			
19:32		10	-019	10 ppb Std	✓				N				
20:30		11	-020	121016-1MS	✓		Sg	1X	Y				
21:28		12	-021	-1MSD	✓		↓	↓	Y				
22:27		13	-022	121123-1	✓		1g	5X	N		Too dilute rerun at 5g		
23:25	↓	14	-023	-2	✓		↓	↓	Y		Needs Confirm.		
00:23	9/13/96	15	-024	121082-1	✓		5mL	1X	Y		Needs Confirm.	Y	↓

INJECTION LOG/ INSTRUMENT ID: VF

CALIBRATION ID: VF091296

CAL. STD. ID.: GC VOA 30-2
QC. STD. ID.: GC VOA 30-1
SURR.STD. ID.: GC VOA 27-2

TIME	DATE	SLOT	FILE #	SAMPLE #	TEST 8010	TEST 8020	VOL / WT	DIL	YES/NO 8010	YES/NO 8020	COMMENT	PH <2	INIT
01:21	9/13/96	16	A/B.256 -025	121082-1ms	✓		SmL	1x	Y			Y	
02:19	↓	1	-026	-1 MSD	✓		↓	↓	Y			↓	↓
03:17		2	-027	-2	✓				Y		ND		
04:15		3	-028	121079-1	✓	✓			Y	Y	ND		
05:13		4	-029	121140-1	✓		↓	↓	Y		ND		
07:09		5	-030	10ppb Std	✓	✓			N	Y			
08:06		6	-031	10ppb Std	✓	✓			Y	–			
10:12		7	-032	121016-2	✓		SS	1x	Y		ND		
		8	-033	121123-1	✓		↓	↓	N		DATA DID NOT COLLECT		
14:14		9	-034	-1	✓		↓	↓	Y		Needs Confirm.		
15:21		10	-035	MB-L	✓	✓			Y	Y	091396AFX		
16:19		11	-036	LCS-L	✓	✓			Y	Y	↓		↓
18:53		12	-037	120080-14	✓		SmL	1x	Y				Js
19:51		13	-038	-15		✓	↓	↓		Y			↓
20:49		14	-039	120081-1	✓	✓	↓	↓	Y	Y			
23:52	↓	15	-040	10ppb Std	✓	✓			N	Y			
00:49	9/14/96	16	-041	10ppb Std	✓	✓			Y	–			
01:47	↓	1	-042	10ppb Std	✓	✓			–	–			↓
	9/15/96	2		10ppb Std	✓	✓							
	9/15/96	2		10ppb Std									
				MB-L									
				LCS-L									
				121118-13									
				MB-S									

INJECTION LOG/ INSTRUMENT ID:VE

CALIBRATION ID: VE091696

CAL. STD. ID.: GC VOA 30-2
QC. STD. ID.: GC VOA 30-1
SURR.STD. ID.: GC VOA 27-2

TIME	DATE	SLOT	FILE #	SAMPLE #	TEST 8010	TEST 8020	VOL / WT	DIL	YES/NO 8010	YES/NO 8020	COMMENT	PH <2	INIT
	9/14/96	11	A/B-261 -001	1 ppb std	✓	✓			N	Y	Calibration		✓
		12	-002	4 ppb std	✓	✓			N	Y			
		13	-003	10ppb std	✓	✓			N	N			
		14	-004	20 ppb std	✓	✓			N	Y			
		15	-005	30ppb std	✓	✓			N	Y			
		16	-006	10 ppb std	✓	✓			N	Y			
		1	-007	20 ppb std	✓				N				
		2	-008	MB-L	✓				Y		091696AEX		
		3	-009	LCS-L	✓	2nd COLUMN							
		4	-010	121139-4	✓	SURR			N		Contaminated	Y	
		5	-011	121082-1		CONFIRMATION					Confirmation		
		6	-012	-2	✓								
		7	-013	10ppb std	✓				Y				
08:11	9/15/96	9	A/B-262 -001	10ppb std	✓	✓			Y	Y			✓
09:06		10	-002	MB-L	✓	✓			Y	Y			
10:06		11	-003	121123-1	✓		S_8	1x	Y		Confirmations		
11:00		12	-004	-2	✓		↓	↓	Y		↓		
13:38		13	-005	MB-M		✓				N	bad purge		
14:33		14	-006	LCS-M		✓				Y	091796AX		
15:28		15	-007	LCD-M		✓				Y	↓		
16:23		16	-008	121002-8		✓				Y			
17:18		1	-009	-8 MS		✓				Y			
18:13		2	-010	blank									
19:07	↓	3	-011	MB-M		✓				N	Contamination		↓

INITIAL CALIBRATION SUMMARY

TEST: 8010/8020

INITIAL CALIBRATION CHECK VF091096

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: Channel 23A Calibration Date(s): 9-10-96 9-10-96

Calibration Times : 07:55 11:47

GC Column: Rtx-502.2 ID: 0.53 (mm)

LAB FILE ID: CF 1 = A_254_001
CF 2 = A_254_002
CF 3 = A_254_003
CF 4 = A_254_004
CF 5 = A_254_005

SAMPLE NAME: 1 PPB 8010/8020 STD
4 PPB 8010/8020 STD
10 PPB 8010/8020 STD
20 PPB 8010/8020 STD
40 PPB 8010/8020 STD

COMPOUND	CF 1	CF 2	CF 3	CF 4	CF 5	AVG CF	AVG RT	%RSD
MTBE	7099	6620	6611	6517	6104	6590	13.78	5.4
BENZENE	19732	18787	18090	18136	17642	18477	21.79	4.4
TOLUENE	19832	17244	16779	16860	16418	17427	28.40	7.9
CHLOROBENZEN	17865	17035	17268	17569	17331	17414	33.57	1.8
ETHYLBENZENE	15830	14833	14992	15210	14858	15145	33.76	2.7
M+P-XYLENE	18683	17189	17201	17323	16849	17449	34.02	4.1
O-XYLENE	15769	14740	14725	14835	14637	14941	35.58	3.1
SURR. BFB	14543	14135	14415	14607	15095	14559	37.77	2.4
1,3-DICLBENZ	16909	14724	14754	15065	15027	15296	41.78	6.0
1,4-DICLBENZ	18682	14659	14092	14236	14070	15148	42.17	13.1
1,2-DICLBENZ	12641	12125	12007	12254	12044	12214	43.52	2.1

% RSD must be less than or equal to 20% or r >=.995 for quantitation.
Calibration curves are being used for quantitation.

```
Method:     R2HYYC$DIA1:[SYS1.GC23]A_8020254_RW.MET;13
Date:       10-SEP-1996 12:41:53.30

Last edit: 10-SEP-1996 12:38:19.99

HEADER INFORMATION
Author.....RW
Instrument.....GC23
Column type.....RESTEK 502.2
      length.....105 M
      diameter.....0.53 MM
Stationary phase.....RTX-502.2
Mobile phase.....UHP He
Detector.....PID
Notes.....
                                8010/8020 STD: GC VOA 27-2; SURR. BFB: GC VOA 27

ACQUISITION PARAMETERS
Delay time (min).....0.00
Run time (min).....50.00
Starting peak width (sec).....20.0
Sampling rate (pts/sec).....1.0
Noise threshold (microvolts).....20.0
Area threshold.....600
A/D range (volts).....1

ANALYSIS PARAMETERS
Type of analysis.....External standard
Area reject (counts).....600
Absolute search window (sec).....0.5
Relative search window (%).....0.5
Events track Reference peaks?.....N
Default volume.....5.000
Report units.....ppb
Area or Height quantitation.....Peak area
Calculation mode.....Quadratic fit
Origin? (Force, Ignore, Use).....F
Curve weighting.....No weighting
Group report (Y/N).....N
Suppress unknowns (Y/N).....Y

PLOT PARAMETERS
Start time (min.).....0.00
End time (min.).....50.00
Y-axis scaling (R/A).....R
Vertical scale factor.....1.00
Vertical offset.....0
Time axis length (cm).....17.50
Response axis length (cm).....13.00
Include header/margin (B,H,M,N)...B
Baseline option (Y/N).....Y
Timed events option (Y/N).....N
```

Named peaks option (Y/N).....N
Include ret. times (Y/N).....Y
Time to display the peak names (F,M,A)M
Rotate plot (Y/N).....N
Mark peak start/end option (Y/N)..N
Label plot units.....Counts
Counts to Units conversion.....1.000E+00

EVENTS TABLE

R.T.(min)	Event codes
49.23	FV
49.88	SP
53.10	-FV

CALIBRATION SAMPLE TABLE

No.	Standard Sample
1	10 PPB 8010/8020 STD
2	20 PPB 8010/8020 STD
3	4 PPB 8010/8020 STD
4	1 PPB 8010/8020 STD
5	40 PPB 8010/8020 STD

NAMES TABLE

Peak: MTBE
R.T.(min): 13.796

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	20.000	661072	6.611E+03		1
2	40.000	1303448	6.517E+03		1
3	10.000	330997	6.620E+03		1
4	5.0000	177470	7.099E+03		1
5	80.000	2441779	6.104E+03		1

K0: 0.000000E+00 K1: 6.863466E+03 K2: -1.890621E+00
CD: 0.9999

Peak: BENZENE
R.T.(min): 21.744

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	904475	1.809E+04		1
2	20.000	1813601	1.814E+04		1
3	4.0000	375731	1.879E+04		1
4	1.0000	98658	1.973E+04		1
5	40.000	3528406	1.764E+04		1

K0: 0.000000E+00 K1: 1.852639E+04 K2: -4.405539E+00

CD: 1.0000

Peak: TOLUENE
R.T.(min): 28.370

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	838954	1.678E+04		1
2	20.000	1686007	1.686E+04		1
3	4.0000	344884	1.724E+04		1
4	1.0000	99158	1.983E+04		1
5	40.000	3283545	1.642E+04		1

K0: 0.000000E+00 K1: 1.718358E+04 K2: -3.809223E+00
CD: 0.9999

Peak: CHLOROBENZENE
R.T.(min): 33.543

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	863391	1.727E+04		1
2	20.000	1756934	1.757E+04		1
3	4.0000	340696	1.703E+04		1
4	1.0000	89326	1.787E+04		1
5	40.000	3466150	1.733E+04		1

K0: 0.000000E+00 K1: 1.755364E+04 K2: -1.059093E+00
CD: 0.9999

Peak: ETHYLBENZENE
R.T.(min): 33.726

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	749576	1.499E+04		1
2	20.000	1521026	1.521E+04		1
3	4.0000	296659	1.483E+04		1
4	1.0000	79151	1.583E+04		1
5	40.000	2971574	1.486E+04		1

K0: 0.000000E+00 K1: 1.532723E+04 K2: -2.295870E+00
CD: 0.9999

Peak: M+P-XYLENE
R.T.(min): 33.996

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	20.000	1720091	1.720E+04		1
2	40.000	3464596	1.732E+04		1
3	8.0000	687571	1.719E+04		1

4	2.0000	186834	1.868E+04	1
5	80.000	6739437	1.685E+04	1

K0: 0.000000E+00 K1: 1.759477E+04 K2: -1.844091E+00
CD: 1.0000

Peak: O-XYLENE
R.T.(min): 35.548

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	736240	1.472E+04		1
2	20.000	1483464	1.483E+04		1
3	4.0000	294805	1.474E+04		1
4	1.0000	78843	1.577E+04		1
5	40.000	2927354	1.464E+04		1

K0: 0.000000E+00 K1: 1.492011E+04 K2: -1.393518E+00
CD: 1.0000

Peak: SURR. BFB
R.T.(min): 37.738
R/S: R

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	20.000	1441460	1.441E+04		1
2	20.000	1460722	1.461E+04		1
3	20.000	1413542	1.414E+04		1
4	20.000	1454334	1.454E+04		1
5	20.000	1509486	1.509E+04		1

K0: 0.000000E+00 K1: 1.455909E+04 K2: 0.000000E+00
CD: Inconsistent Data

Peak: 1,3-DICLBENZ
R.T.(min): 41.749

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	737693	1.475E+04		1
2	20.000	1506519	1.507E+04		1
3	4.0000	294484	1.472E+04		1
4	1.0000	84544	1.691E+04		1
5	40.000	3005437	1.503E+04		1

K0: 0.000000E+00 K1: 1.493164E+04 K2: 5.123806E-01
CD: 0.9999

Peak: 1,4-DICLBENZ
R.T.(min): 42.139

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	704583	1.409E+04		1
2	20.000	1423590	1.424E+04		1
3	4.0000	293184	1.466E+04		1
4	1.0000	93409	1.868E+04		1
5	40.000	2814098	1.407E+04		1

K0: 0.000000E+00 K1: 1.435004E+04 K2: -1.394636E+00
CD: 0.9999

Peak: 1,2-DICLBENZ
R.T.(min): 43.489

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	600340	1.201E+04		1
2	20.000	1225443	1.225E+04		1
3	4.0000	242502	1.213E+04		1
4	1.0000	63207	1.264E+04		1
5	40.000	2408762	1.204E+04		1

K0: 0.000000E+00 K1: 1.227999E+04 K2: -1.142969E+00
CD: 0.9999

Peak: NAPTHALENE
R.T.(min): 49.761

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	10.000	79858	1.597E+03		1
2	20.000	23596	2.360E+02		1
3	4.0000	74840	3.742E+03		1
4	1.0000	11821	2.364E+03		1
5	40.000	15861	7.930E+01		1

K0: 0.000000E+00 K1: 1.284335E+03 K2: -6.229284E+00
CD: Inconsistent Data

UN-NAMED PEAK CALIBRATION FACTOR TABLE

***** No calibration data.

REPORT DISTRIBUTION TABLE

Printer No.	No. Reports	Plot?	Report size
4	0	Y	S

PROGRAM LIST

Program	Run string
RGEN	#D,GC,P4

INITIAL CALIBRATION CHECK VF091096

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: Channel 53A Calibration Date(s): 9-10-96 9-10-96

Calibration Times : 07:55 11:47

GC Column: RTX-502.2 ID: 0.53 (mm)

LAB FILE ID: CF 1 = B_254_001
CF 2 = B_254_002
CF 3 = B_254_003
CF 4 = B_254_004
CF 5 = B_254_005

SAMPLE NAME: 1 PPB 8010/8020 STD
4 PPB 8010/8020 STD
10 PPB 8010/8020 STD
20 PPB 8010/8020 STD
40 PPB 8010/8020 STD

COMPOUND	CF 1	CF 2	CF 3	CF 4	CF 5	AVG CF	AVG RT	%RSD
DICLDIFLMETH	4210	3923	3993	4354	4230	4142	5.12	4.3
CHLOROMETHAN	1300	1247	1336	1454	1859	1439	5.63	17.1
VINYL CHLORI	9891	10082	11014	12014	12065	11013	6.02	9.3
BROMOMETHANE	8403	5101	5338	5438	5199	5896	7.32	23.9
CHLOROETHANE	15366	7358	7820	8043	8072	9332	7.59	36.3
TRICLFLMETH	8373	10622	9943	10771	9284	9799	8.47	10.1
FREON 113	18155	16610	16935	18433	16866	17400	10.31	4.8
1,1-DICHLORE	25806	25113	25383	25440	23716	25091	11.03	3.2
MECL2	31080	30147	29587	29015	27364	29439	13.07	4.7
t-1,2-DICHLE	25830	25323	25202	24786	23058	24840	14.22	4.3
1,1-DICHLETH	25189	25475	25321	24980	23416	24876	15.93	3.4
c-1,2-DICHLE	25835	25606	25329	24666	22998	24887	18.24	4.6
CHLOROFORM	33583	33126	32415	31403	29214	31948	18.82	5.4
1,1,1-TRICLE	29342	28055	27490	27268	25256	27482	20.26	5.4
CARBON TET	31720	30428	29856	29461	26558	29605	21.16	6.4
1,2-DICHLETH	25498	25446	24822	24354	22620	24548	21.76	4.8
TRICHLOROETH	30145	28886	28176	27571	25272	28010	23.94	6.4
1,2-DICHLPRO	23194	23228	22894	22119	20870	22461	24.57	4.4
BROMODICHLME	22843	23414	23383	22335	21309	22657	25.39	3.9
2-CLETHVINYL	7213	7849	8515	8496	8278	8070	26.50	6.8
c-1,3-DICLPR	21264	21444	21279	20666	19395	20810	27.30	4.1
t-1,3-DICLPR	19348	19727	19566	19050	17815	19101	29.06	4.0
1,1,2-TRICLE	26357	26410	25606	24786	22871	25206	29.59	5.8
TETRACLORETH	33330	30919	29746	28800	26240	29807	30.67	8.8
DIBROMCLORME	16269	16860	16918	16767	15960	16555	31.40	2.5
CHLOROBENZEN	9687	9820	10042	10038	9470	9811	33.57	2.5
1,1,1,2-TETC	30180	31917	30674	30313	27667	30150	33.72	5.1
BROMOFORM	10416	11204	11668	11655	11179	11225	36.92	4.5
1,1,2,2-TETC	19274	19570	19268	18535	16996	18729	37.49	5.6
SURR. BFB	6839	6981	7375	7490	8228	7382	37.77	7.4
1,3-DICLBENZ	16378	16348	16261	15946	15063	15999	41.78	3.4
1,4-DICLBENZ	17023	16989	16686	16299	15148	16429	42.17	4.7
1,2-DICLBENZ	16477	16739	16585	16140	15157	16220	43.52	3.9
1,2-DIBR-3-C	4144	4809	5013	4749	3680	4479	46.42	12.3

% RSD must be less than or equal to 20% or r >=.995 for quantitation.
Calibration curves are being used for quantitation.

```
Method:     R2HYYC$DIA1:[SYS1.GC23]B_8010254_RW.MET;109
Date:       10-SEP-1996 12:42:00.16

Last edit: 10-SEP-1996 12:38:36.37

HEADER INFORMATION
Author.....RW
Instrument.....GC23
Column type.....RESTEK 502.2 MEGABORE
       length.....105 M
       diameter.....0.53mm
Stationary phase.....RTX-502.2
Mobile phase.....UHP He
Detector.....ELCD
Notes.....
                                8010/8020 STD: GC VOA 27-2; SURR. BFB: GC VOA 27-

ACQUISITION PARAMETERS
Delay time (min).....0.00
Run time (min).....50.00
Starting peak width (sec).....5.0
Sampling rate (pts/sec).....5.0
Noise threshold (microvolts).....20.0
Area threshold.....200
A/D range (volts).....1

ANALYSIS PARAMETERS
Type of analysis.....External standard
Area reject (counts).....600
Absolute search window (sec).....0.0
Relative search window (%).....0.5
Events track Reference peaks?.....N
Default volume.....5.000
Report units.....ppb
Area or Height quantitation.....Peak area
Calculation mode.....Quadratic fit
Origin? (Force, Ignore, Use).....F
Curve weighting.....No weighting
Group report (Y/N).....N
Suppress unknowns (Y/N).....Y

PLOT PARAMETERS
Start time (min.).....0.00
End time (min.).....50.00
Y-axis scaling (R/A).....R
Vertical scale factor.....1.00
Vertical offset.....0
Time axis length (cm).....17.50
Response axis length (cm).....13.00
Include header/margin (B,H,M,N)...B
Baseline option (Y/N).....Y
Timed events option (Y/N).....N
```

Named peaks option (Y/N).....N
Include ret. times (Y/N).....Y
Time to display the peak names (F,M,A)M
Rotate plot (Y/N).....N
Mark peak start/end option (Y/N)..N
Label plot units.....Counts
Counts to Units conversion.....1.000E+00

EVENTS TABLE

R.T.(min)	Event codes
4.30	AW5
4.65	PW30
7.08	PW40
7.56	FO
7.83	-FO
8.18	PW30
14.22	AW1

CALIBRATION SAMPLE TABLE

No.	Standard Sample
1	1 PPB 8010/8020 STD
2	4 PPB 8010/8020 STD
3	10 PPB 8010/8020 STD
4	40 PPB 8010/8020 STD
5	20 PPB 8010/8020 STD

NAMES TABLE

Peak: DICLDIFLMETH
R.T.(min): 5.074

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	21051	4.210E+03		1
2	4.0000	78457	3.923E+03		1
3	10.000	199630	3.993E+03		1
4	40.000	846094	4.230E+03		1
5	20.000	435403	4.354E+03		1

K0: 0.000000E+00 K1: 4.237490E+03 K2: 1.597398E-02
CD: 0.9993

Peak: CHLOROMETHANE
R.T.(min): 5.615

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	6499	1.300E+03		1
2	4.0000	24940	1.247E+03		1
3	10.000	66825	1.336E+03		1

4	40.000	371855	1.859E+03	1
5	20.000	145444	1.454E+03	1

K0: 0.000000E+00 K1: 1.099541E+03 K2: 3.787831E+00
CD: 0.9998

Peak: VINYL CHLORIDE
R.T.(min): 6.005

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	49457	9.891E+03		1
2	4.0000	201634	1.008E+04		1
3	10.000	550704	1.101E+04		1
4	40.000	2413029	1.207E+04		1
5	20.000	1201394	1.201E+04		1

K0: 0.000000E+00 K1: 1.134184E+04 K2: 3.754820E+00
CD: 0.9994

Peak: BROMOMETHANE
R.T.(min): 7.224

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	42014	8.403E+03		1
2	4.0000	102014	5.101E+03		1
3	10.000	266912	5.338E+03		1
4	40.000	1039813	5.199E+03		1
5	20.000	543766	5.438E+03		1

K0: 0.000000E+00 K1: 5.547030E+03 K2: -1.712599E+00
CD: 0.9995

Peak: CHLOROETHANE
R.T.(min): 7.462

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	76829	1.537E+04		1
2	4.0000	147163	7.358E+03		1
3	10.000	391023	7.820E+03		1
4	40.000	1614333	8.072E+03		1
5	20.000	804322	8.043E+03		1

K0: 0.000000E+00 K1: 7.906034E+03 K2: 8.486237E-01
CD: 0.9990

Peak: TRICLFLMETH
R.T.(min): 8.366

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs

1	1.0000	41865	8.373E+03		1
2	4.0000	212444	1.062E+04		1
3	10.000	497172	9.943E+03		1
4	40.000	1856821	9.284E+03		1
5	20.000	1077089	1.077E+04		1

K0: 0.000000E+00 K1: 1.140498E+04 K2: -1.042566E+01
CD: 0.9980

Peak: FREON 113
R.T.(min): 10.180

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	90773	1.815E+04		1
2	4.0000	332191	1.661E+04		1
3	10.000	846753	1.694E+04		1
4	40.000	3373263	1.687E+04		1
5	20.000	1843307	1.843E+04		1

K0: 0.000000E+00 K1: 1.868395E+04 K2: -8.806332E+00
CD: 0.9986

Peak: 1,1-DICHLORETH
R.T.(min): 10.949

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	129028	2.581E+04		1
2	4.0000	502267	2.511E+04		1
3	10.000	1269131	2.538E+04		1
4	40.000	4743115	2.372E+04		1
5	20.000	2544009	2.544E+04		1

K0: 0.000000E+00 K1: 2.658958E+04 K2: -1.424292E+01
CD: 0.9999

Peak: MECL2
R.T.(min): 13.029

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	155401	3.108E+04		1
2	4.0000	602940	3.015E+04		1
3	10.000	1479349	2.959E+04		1
4	40.000	5472897	2.736E+04		1
5	20.000	2901471	2.901E+04		1

K0: 0.000000E+00 K1: 3.053681E+04 K2: -1.583586E+01
CD: 1.0000

Peak: t-1,2-DICHLETH
R.T.(min): 14.156

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	129148	2.583E+04		1
2	4.0000	506458	2.532E+04		1
3	10.000	1260094	2.520E+04		1
4	40.000	4611637	2.306E+04		1
5	20.000	2478562	2.479E+04		1

K0: 0.000000E+00 K1: 2.623215E+04 K2: -1.580764E+01
CD: 1.0000

Peak: 1,1-DICHLETHAN
R.T.(min): 15.878

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	125946	2.519E+04		1
2	4.0000	509501	2.548E+04		1
3	10.000	1266035	2.532E+04		1
4	40.000	4683175	2.342E+04		1
5	20.000	2497977	2.498E+04		1

K0: 0.000000E+00 K1: 2.626944E+04 K2: -1.420715E+01
CD: 1.0000

Peak: c-1,2-DICHLETH
R.T.(min): 18.196

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	129174	2.583E+04		1
2	4.0000	512111	2.561E+04		1
3	10.000	1266431	2.533E+04		1
4	40.000	4599539	2.300E+04		1
5	20.000	2466591	2.467E+04		1

K0: 0.000000E+00 K1: 2.621909E+04 K2: -1.608089E+01
CD: 1.0000

Peak: CHLOROFORM
R.T.(min): 18.788

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	167917	3.358E+04		1
2	4.0000	662524	3.313E+04		1
3	10.000	1620740	3.241E+04		1
4	40.000	5842831	2.921E+04		1
5	20.000	3140289	3.140E+04		1

K0: 0.000000E+00 K1: 3.355244E+04 K2: -2.168379E+01

CD: 1.0000

Peak: 1,1,1-TRICLETH
R.T.(min): 20.216

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	146710	2.934E+04		1
2	4.0000	561100	2.806E+04		1
3	10.000	1374482	2.749E+04		1
4	40.000	5051213	2.526E+04		1
5	20.000	2726811	2.727E+04		1

K0: 0.000000E+00 K1: 2.885310E+04 K2: -1.789604E+01
CD: 0.9999

Peak: CARBON TET
R.T.(min): 21.111

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	158599	3.172E+04		1
2	4.0000	608559	3.043E+04		1
3	10.000	1492792	2.986E+04		1
4	40.000	5311522	2.656E+04		1
5	20.000	2946148	2.946E+04		1

K0: 0.000000E+00 K1: 3.176344E+04 K2: -2.590100E+01
CD: 0.9999

Peak: 1,2-DICHLETHAN
R.T.(min): 21.721

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	127488	2.550E+04		1
2	4.0000	508929	2.545E+04		1
3	10.000	1241096	2.482E+04		1
4	40.000	4524029	2.262E+04		1
5	20.000	2435399	2.435E+04		1

K0: 0.000000E+00 K1: 2.587805E+04 K2: -1.624626E+01
CD: 1.0000

Peak: TRICHLOROETHEN
R.T.(min): 23.900

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	150725	3.014E+04		1
2	4.0000	577728	2.889E+04		1
3	10.000	1408811	2.818E+04		1

4	40.000	5054328	2.527E+04	1
5	20.000	2757080	2.757E+04	1

K0: 0.000000E+00 K1: 2.957955E+04 K2: -2.147955E+01
CD: 1.0000

Peak: 1,2-DICHLPROPA
R.T.(min): 24.539

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	115970	2.319E+04		1
2	4.0000	464554	2.323E+04		1
3	10.000	1144724	2.289E+04		
4	40.000	4173950	2.087E+04		1
5	20.000	2211903	2.212E+04		1

K0: 0.000000E+00 K1: 2.344560E+04 K2: -1.289492E+01
CD: 1.0000

Peak: BROMODICHLMETH
R.T.(min): 25.361

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	114213	2.284E+04		1
2	4.0000	468274	2.341E+04		1
3	10.000	1169127	2.338E+04		1
4	40.000	4261833	2.131E+04		1
5	20.000	2233503	2.234E+04		1

K0: 0.000000E+00 K1: 2.362302E+04 K2: -1.162126E+01
CD: 1.0000

Peak: 2-CLETHVINYLETH
R.T.(min): 26.463

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	36067	7.213E+03		1
2	4.0000	156985	7.849E+03		1
3	10.000	425740	8.515E+03		1
4	40.000	1655691	8.278E+03		1
5	20.000	849621	8.496E+03		1

K0: 0.000000E+00 K1: 8.591543E+03 K2: -1.532891E+00
CD: 0.9998

Peak: c-1,3-DICLPROP
R.T.(min): 27.266

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs

1	1.0000	106319	2.126E+04		1
2	4.0000	428878	2.144E+04		1
3	10.000	1063944	2.128E+04		1
4	40.000	3879068	1.940E+04		1
5	20.000	2066622	2.067E+04		1

K0: 0.000000E+00 K1: 2.190199E+04 K2: -1.252373E+01
CD: 1.0000

Peak: t-1,3-DICLPROP
R.T.(min): 29.023

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	96742	1.935E+04		1
2	4.0000	394540	1.973E+04		1
3	10.000	978306	1.957E+04		1
4	40.000	3562982	1.781E+04		1
5	20.000	1904989	1.905E+04		1

K0: 0.000000E+00 K1: 2.020627E+04 K2: -1.193805E+01
CD: 1.0000

Peak: 1,1,2-TRICLETH
R.T.(min): 29.563

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	131787	2.636E+04		1
2	4.0000	528200	2.641E+04		1
3	10.000	1280311	2.561E+04		1
4	40.000	4574219	2.287E+04		1
5	20.000	2478560	2.479E+04		1

K0: 0.000000E+00 K1: 2.664493E+04 K2: -1.885933E+01
CD: 1.0000

Peak: TETRACLORETHEN
R.T.(min): 30.634

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	166648	3.333E+04		1
2	4.0000	618375	3.092E+04		1
3	10.000	1487300	2.975E+04		1
4	40.000	5248070	2.624E+04		1
5	20.000	2879968	2.880E+04		1

K0: 0.000000E+00 K1: 3.122698E+04 K2: -2.491060E+01
CD: 1.0000

Peak: DIBROMCLORMETH
R.T.(min): 31.365

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	81345	1.627E+04		1
2	4.0000	337201	1.686E+04		1
3	10.000	845890	1.692E+04		1
4	40.000	3192010	1.596E+04		1
5	20.000	1676736	1.677E+04		1

K0: 0.000000E+00 K1: 1.740348E+04 K2: -7.178094E+00
CD: 1.0000

Peak: 1,2-DIBRETHAN
R.T.(min): 32.478

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	16778	3.356E+03		1
2	4.0000	122109	6.105E+03		1
3	10.000	344290	6.886E+03		1
4	40.000	1323	6.615E+00		1
5	20.000	20538	2.054E+02		1

K0: 0.000000E+00 K1: 3.910160E+03 K2: -2.024348E+01
CD: 0.1394

Peak: CHLOROBENZENE
R.T.(min): 33.540

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	48434	9.687E+03		1
2	4.0000	196399	9.820E+03		1
3	10.000	502087	1.004E+04		1
4	40.000	1894043	9.470E+03		1
5	20.000	1003812	1.004E+04		1

K0: 0.000000E+00 K1: 1.041426E+04 K2: -4.676450E+00
CD: 0.9999

Peak: 1,1,1,2-TETCLETH
R.T.(min): 33.691

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	150898	3.018E+04		1
2	4.0000	638342	3.192E+04		1
3	10.000	1533697	3.067E+04		1
4	40.000	5533432	2.767E+04		1
5	20.000	3031284	3.031E+04		1

K0: 0.000000E+00 K1: 3.246170E+04 K2: -2.387074E+01

CD: 0.9999

Peak: BROMOFORM
R.T.(min): 36.889

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	52079	1.042E+04		1
2	4.0000	224086	1.120E+04		1
3	10.000	583424	1.167E+04		1
4	40.000	2235848	1.118E+04		1
5	20.000	1165515	1.166E+04		1

K0: 0.000000E+00 K1: 1.194566E+04 K2: -3.787246E+00
CD: 0.9999

Peak: 1,1,2,2-TETCLE
R.T.(min): 37.463

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	96368	1.927E+04		1
2	4.0000	391408	1.957E+04		1
3	10.000	963404	1.927E+04		1
4	40.000	3399269	1.700E+04		1
5	20.000	1853510	1.854E+04		1

K0: 0.000000E+00 K1: 2.003572E+04 K2: -1.518708E+01
CD: 1.0000

Peak: SURR. BFB
R.T.(min): 37.735
R/S: R

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	20.000	683916	6.839E+03		1
2	20.000	698052	6.981E+03		1
3	20.000	737493	7.375E+03		1
4	20.000	822781	8.228E+03		1
5	20.000	748971	7.490E+03		1

K0: 0.000000E+00 K1: 7.382426E+03 K2: 0.000000E+00
CD: 0.0000

Peak: 1,3-DICLBENZ
R.T.(min): 41.744

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	81888	1.638E+04		1
2	4.0000	326968	1.635E+04		1

3	10.000	813069	1.626E+04	1
4	40.000	3012658	1.506E+04	1
5	20.000	1594581	1.595E+04	1

K0: 0.000000E+00 K1: 1.674214E+04 K2: -8.374546E+00
CD: 1.0000

Peak: 1,4-DICLBENZ
R.T.(min): 42.135

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	85115	1.702E+04		1
2	4.0000	339784	1.699E+04		1
3	10.000	834313	1.669E+04		1
4	40.000	3029615	1.515E+04		1
5	20.000	1629909	1.630E+04		1

K0: 0.000000E+00 K1: 1.734219E+04 K2: -1.094745E+01
CD: 1.0000

Peak: 1,2-DICLBENZ
R.T.(min): 43.485

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	82386	1.648E+04		1
2	4.0000	334781	1.674E+04		1
3	10.000	829261	1.659E+04		1
4	40.000	3031457	1.516E+04		1
5	20.000	1613952	1.614E+04		1

K0: 0.000000E+00 K1: 1.708114E+04 K2: -9.609216E+00
CD: 1.0000

Peak: 1,2-DIBR-3-CHLPR
R.T.(min): 46.388

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	20720	4.144E+03		1
2	4.0000	96188	4.809E+03		1
3	10.000	250647	5.013E+03		1
4	40.000	735977	3.680E+03		1
5	20.000	474942	4.749E+03		1

K0: 0.000000E+00 K1: 5.616029E+03 K2: -9.632956E+00
CD: 0.9990

UN-NAMED PEAK CALIBRATION FACTOR TABLE

***** No calibration data.

REPORT DISTRIBUTION TABLE

Printer No.	No. Reports	Plot?	Report size
4	0	Y	S

PROGRAM LIST

Program	Run string
RGEN	#D,GC,P4

INITIAL CALIBRATION CHECK VF091296

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: Channel 53A Calibration Date(s): 9-12-96 9-12-96

Calibration Times : 00:39 04:31

GC Column: RTX-5022 ID: 0.53 (mm)

LAB FILE ID: CF 1 = B_256_001
CF 2 = B_256_002
CF 3 = B_256_003
CF 4 = B_256_004
CF 5 = B_256_005

SAMPLE NAME: 1 PPB 8010/8020 STD
4 PPB 8010/8020 STD
10 PPB 8010/8020 STD
20 PPB 8010/8020 STD
40 PPB 8010/8020 STD

COMPOUND	CF 1	CF 2	CF 3	CF 4	CF 5	AVG CF	AVG RT	%RSD
DICLDIFLMETH	3402	2597	2878	3023	3013	2982	5.15	9.8
CHLOROMETHAN	997	747	815	854	935	870	5.65	11.3
VINYL CHLORI	7702	8057	8733	9324	9695	8702	6.05	9.6
BROMOMETHANE	2306	3219	3658	3766	4076	3405	7.38	20.2
CHLOROETHANE	12374	4825	5178	5555	6163	6819	7.63	46.1
TRICLFLMETH	6561	7416	8431	9086	9228	8144	8.50	14.0
~~FREON 113~~	~~578~~	~~0~~	~~0~~	~~207~~	~~52~~	~~167~~	~~6.22~~	~~146.1~~
1,1-DICHLORE	21263	21129	22606	21991	20864	21571	11.06	3.3
MECL2	25368	26108	27114	26037	24619	25849	13.09	3.6
t-1,2-DICHLE	22628	22471	23307	22495	20715	22323	14.23	4.3
1,1-DICHLETH	21987	22700	23601	22595	21171	22411	15.94	4.0
c-1,2-DICHLE	21644	22204	22903	21882	20210	21769	18.25	4.6
CHLOROFORM	29739	29542	30328	28545	26376	28906	18.83	5.4
1,1,1-TRICLE	24583	24734	25778	24792	22862	24550	20.27	4.3
CARBON TET	27981	27581	28779	27272	24917	27306	21.17	5.3
1,2-DICHLETH	22043	22528	23082	21752	20458	21973	21.76	4.5
TRICHLOROETH	25694	25560	26125	24775	22668	24964	23.94	5.5
1,2-DICHLPRO	20380	20775	21203	20234	18806	20279	24.58	4.5
BROMODICHLME	19926	20840	21651	20711	19051	20436	25.40	4.8
2-CLETHVINYL	5919	6846	7578	7546	7197	7017	26.50	9.7
c-1,3-DICLPR	18445	19038	19756	18319	17381	18588	27.30	4.7
t-1,3-DICLPR	16660	17385	18119	17168	16189	17104	29.06	4.3
1,1,2-TRICLE	23393	23975	24049	22628	21098	23029	29.60	5.3
TETRACLORETH	29845	27306	27844	26184	23892	27014	30.67	8.1
DIBROMCLORME	14120	15255	16066	15481	14892	15163	31.40	4.8
CHLOROBENZEN	9358	10047	10554	10180	9740	9976	33.58	4.5
BROMOFORM	8427	9834	10711	10620	10253	9969	36.93	9.3
1,1,2,2-TETC	17316	17740	18191	17315	15976	17307	37.50	4.8
SURR. BFB	6295	6531	7232	7466	7316	6968	37.77	7.5
1,3-DICLBENZ	14254	14381	15035	14335	13676	14336	41.79	3.4
1,4-DICLBENZ	14859	14892	15676	14798	13837	14812	42.18	4.4
1,2-DICLBENZ	14622	14815	15535	14800	14014	14757	43.53	3.7
1,2-DIBR-3-C	3726	4250	4765	4718	4253	4342	46.43	9.7

% RSD must be less than or equal to 20% or r >=.995 for quantitation.
Calibration curves are being used for quantitation.

```
Method:     R2HYYC$DIA1:[SYS1.GC23]B_8010256_PS.MET;7
Date:       12-SEP-1996 06:56:33.83

Last edit: 12-SEP-1996 05:21:45.52

HEADER INFORMATION
Author.....PS
Instrument.....GC23
Column type.....RESTEK 502.2 MEGABORE
       length.....105 M
       diameter.....0.53mm
Stationary phase.....RTX-502.2
Mobile phase.....UHP He
Detector.....ELCD
Notes.....
                                8010/8020 STD: GC VOA 27-2; SURR. BFB: GC VOA 27

ACQUISITION PARAMETERS
Delay time (min).....0.00
Run time (min).....50.00
Starting peak width (sec).....5.0
Sampling rate (pts/sec).....5.0
Noise threshold (microvolts).....20.0
Area threshold.....200
A/D range (volts).....1

ANALYSIS PARAMETERS
Type of analysis.....External standard
Area reject (counts).....600
Absolute search window (sec).....0.0
Relative search window (%).....0.5
Events track Reference peaks?.....N
Default volume.....5.000
Report units.....ppb
Area or Height quantitation.....Peak area
Calculation mode.....Quadratic fit
Origin? (Force, Ignore, Use).....F
Curve weighting.....No weighting
Group report (Y/N).....N
Suppress unknowns (Y/N).....Y

PLOT PARAMETERS
Start time (min.).....0.00
End time (min.).....50.00
Y-axis scaling (R/A).....R
Vertical scale factor.....1.00
Vertical offset.....0
Time axis length (cm).....17.50
Response axis length (cm).....13.00
Include header/margin (B,H,M,N)...B
Baseline option (Y/N).....Y
Timed events option (Y/N).....N
```

Named peaks option (Y/N).....N
Include ret. times (Y/N).....Y
Time to display the peak names (F,M,A)M
Rotate plot (Y/N).....N
Mark peak start/end option (Y/N)..N
Label plot units.....Counts
Counts to Units conversion.....1.000E+00

EVENTS TABLE

R.T.(min)	Event codes
4.30	AW5
4.65	PW30
7.08	PW40
7.56	FO
7.83	-FO
8.18	PW30
14.22	AW1

CALIBRATION SAMPLE TABLE

No.	Standard Sample
1	1 PPB 8010/8020 STD
2	4 PPB 8010/8020 STD
3	10 PPB 8010/8020 STD
4	40 PPB 8010/8020 STD
5	20 PPB 8010/8020 STD

NAMES TABLE

Peak: DICLDIFLMETH
R.T.(min): 5.121

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	17011	3.402E+03		1
2	4.0000	51936	2.597E+03		1
3	10.000	143876	2.878E+03		1
4	40.000	602531	3.013E+03		1
5	20.000	302297	3.023E+03		1

K0: 0.000000E+00 K1: 2.928904E+03 K2: 4.424787E-01
CD: 0.9996

Peak: CHLOROMETHANE
R.T.(min): 5.663

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	4986	9.972E+02		1
2	4.0000	14939	7.470E+02		1
3	10.000	40768	8.154E+02		1

4	40.000	187054	9.353E+02	1
5	20.000	85414	8.541E+02	1

K0: 0.000000E+00 K1: 7.714072E+02 K2: 8.198277E-01
CD: 0.9999

Peak: VINYL CHLORIDE
R.T.(min): 6.056

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	38509	7.702E+03		1
2	4.0000	161144	8.057E+03		1
3	10.000	436645	8.733E+03		1
4	40.000	1939023	9.695E+03		1
5	20.000	932425	9.324E+03		1

K0: 0.000000E+00 K1: 8.676137E+03 K2: 5.158172E+00
CD: 0.9998

Peak: BROMOMETHANE
R.T.(min): 7.307

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	11531	2.306E+03		1
2	4.0000	64376	3.219E+03		1
3	10.000	182886	3.658E+03		1
4	40.000	815107	4.076E+03		1
5	20.000	376550	3.766E+03		1

K0: 0.000000E+00 K1: 3.443460E+03 K2: 3.166580E+00
CD: 0.9998

Peak: CHLOROETHANE
R.T.(min): 7.553

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	61872	1.237E+04		1
2	4.0000	96503	4.825E+03		1
3	10.000	258899	5.178E+03		1
4	40.000	1232653	6.163E+03		1
5	20.000	555548	5.555E+03		1

K0: 0.000000E+00 K1: 4.937304E+03 K2: 6.127472E+00
CD: 0.9985

Peak: TRICLFLMETH
R.T.(min): 8.443

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs

1	1.0000	32805	6.561E+03		1
2	4.0000	148322	7.416E+03		1
3	10.000	421549	8.431E+03		1
4	40.000	1845529	9.228E+03		1
5	20.000	908613	9.086E+03		1

K0: 0.000000E+00 K1: 8.527961E+03 K2: 3.594898E+00
CD: 0.9994

Peak: FREON 113
R.T.(min): 10.297

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	2888	5.776E+02		1
2	4.0000	332191	1.661E+04		1
3	10.000	846753	1.694E+04		1
4	40.000	10418	5.209E+01		1
5	20.000	20718	2.072E+02		1

K0: 0.000000E+00 K1: 9.343806E+03 K2: -4.832625E+01
CD: 0.1190

Peak: 1,1-DICHLORETH
R.T.(min): 11.023

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	106315	2.126E+04		1
2	4.0000	422576	2.113E+04		1
3	10.000	1130296	2.261E+04		1
4	40.000	4172858	2.086E+04		1
5	20.000	2199142	2.199E+04		1

K0: 0.000000E+00 K1: 2.297490E+04 K2: -1.050710E+01
CD: 0.9999

Peak: MECL2
R.T.(min): 13.071

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	126840	2.537E+04		1
2	4.0000	522165	2.611E+04		1
3	10.000	1355701	2.711E+04		1
4	40.000	4923743	2.462E+04		1
5	20.000	2603730	2.604E+04		1

K0: 0.000000E+00 K1: 2.751616E+04 K2: -1.448670E+01
CD: 0.9999

Peak: t-1,2-DICHLETH
R.T.(min): 14.207

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	113141	2.263E+04		1
2	4.0000	449423	2.247E+04		1
3	10.000	1165359	2.331E+04		1
4	40.000	4143008	2.072E+04		1
5	20.000	2249489	2.249E+04		1

K0: 0.000000E+00 K1: 2.410229E+04 K2: -1.688808E+01
CD: 0.9999

Peak: 1,1-DICHLETHAN
R.T.(min): 15.917

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	109937	2.199E+04		1
2	4.0000	454000	2.270E+04		1
3	10.000	1180072	2.360E+04		1
4	40.000	4234164	2.117E+04		1
5	20.000	2259539	2.260E+04		1

K0: 0.000000E+00 K1: 2.404976E+04 K2: -1.438867E+01
CD: 0.9999

Peak: c-1,2-DICHLETH
R.T.(min): 18.233

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	108220	2.164E+04		1
2	4.0000	444077	2.220E+04		1
3	10.000	1145167	2.290E+04		1
4	40.000	4042093	2.021E+04		1
5	20.000	2188177	2.188E+04		1

K0: 0.000000E+00 K1: 2.353662E+04 K2: -1.661623E+01
CD: 0.9999

Peak: CHLOROFORM
R.T.(min): 18.817

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	148696	2.974E+04		1
2	4.0000	590850	2.954E+04		1
3	10.000	1516416	3.033E+04		1
4	40.000	5275277	2.638E+04		1
5	20.000	2854461	2.854E+04		1

K0: 0.000000E+00 K1: 3.095942E+04 K2: -2.295432E+01

CD: 0.9999

Peak: 1,1,1-TRICLETH
R.T.(min): 20.254

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	122916	2.458E+04		1
2	4.0000	494677	2.473E+04		1
3	10.000	1288894	2.578E+04		1
4	40.000	4572422	2.286E+04		1
5	20.000	2479234	2.479E+04		1

K0: 0.000000E+00 K1: 2.657791E+04 K2: -1.853422E+01
CD: 0.9999

Peak: CARBON TET
R.T.(min): 21.152

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	139903	2.798E+04		1
2	4.0000	551614	2.758E+04		1
3	10.000	1438946	2.878E+04		1
4	40.000	4983399	2.492E+04		1
5	20.000	2727187	2.727E+04		1

K0: 0.000000E+00 K1: 2.962767E+04 K2: -2.353705E+01
CD: 0.9999

Peak: 1,2-DICHLETHAN
R.T.(min): 21.752

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	110216	2.204E+04		1
2	4.0000	450555	2.253E+04		1
3	10.000	1154099	2.308E+04		1
4	40.000	4091537	2.046E+04		1
5	20.000	2175229	2.175E+04		1

K0: 0.000000E+00 K1: 2.332734E+04 K2: -1.439835E+01
CD: 0.9999

Peak: TRICHLOROETHEN
R.T.(min): 23.934

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	128470	2.569E+04		1
2	4.0000	511195	2.556E+04		1
3	10.000	1306229	2.612E+04		1

4	40.000	4533620	2.267E+04	1
5	20.000	2477504	2.478E+04	1

K0: 0.000000E+00 K1: 2.692997E+04 K2: -2.130887E+01
CD: 1.0000

Peak: 1,2-DICHLPROPA
R.T.(min): 24.570

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	101899	2.038E+04		1
2	4.0000	415497	2.077E+04		1
3	10.000	1060136	2.120E+04		1
4	40.000	3761272	1.881E+04		1
5	20.000	2023352	2.023E+04		1

K0: 0.000000E+00 K1: 2.171613E+04 K2: -1.455257E+01
CD: 1.0000

Peak: BROMODICHLMETH
R.T.(min): 25.390

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	99629	1.993E+04		1
2	4.0000	416800	2.084E+04		1
3	10.000	1082571	2.165E+04		1
4	40.000	3810118	1.905E+04		1
5	20.000	2071073	2.071E+04		1

K0: 0.000000E+00 K1: 2.230083E+04 K2: -1.622421E+01
CD: 0.9999

Peak: 2-CLETHVINYLETH
R.T.(min): 26.492

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	29594	5.919E+03		1
2	4.0000	136917	6.846E+03		1
3	10.000	378887	7.578E+03		1
4	40.000	1439358	7.197E+03		1
5	20.000	754568	7.546E+03		1

K0: 0.000000E+00 K1: 7.731788E+03 K2: -2.632818E+00
CD: 0.9997

Peak: c-1,3-DICLPROP
R.T.(min): 27.298

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs

1	1.0000	92224	1.844E+04		1
2	4.0000	380758	1.904E+04		1
3	10.000	987809	1.976E+04		1
4	40.000	3476261	1.738E+04		1
5	20.000	1831898	1.832E+04		1

K0: 0.000000E+00 K1: 1.968792E+04 K2: -1.161423E+01
CD: 0.9998

Peak: t-1,3-DICLPROP
R.T.(min): 29.053

Spl	Conc	Area	Cal.Fact.	% Rel SD	uns
1	1.0000	83300	1.666E+04		1
2	4.0000	347693	1.738E+04		1
3	10.000	905935	1.812E+04		1
4	40.000	3237739	1.619E+04		1
5	20.000	1716829	1.717E+04		1

K0: 0.000000E+00 K1: 1.829773E+04 K2: -1.056698E+01
CD: 0.9999

Peak: 1,1,2-TRICLETH
R.T.(min): 29.592

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	116963	2.339E+04		1
2	4.0000	479505	2.398E+04		1
3	10.000	1202472	2.405E+04		1
4	40.000	4219569	2.110E+04		1
5	20.000	2262811	2.263E+04		1

K0: 0.000000E+00 K1: 2.446232E+04 K2: -1.688081E+01
CD: 0.9999

Peak: TETRACLORETHEN
R.T.(min): 30.666

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	149225	2.984E+04		1
2	4.0000	546126	2.731E+04		1
3	10.000	1392223	2.784E+04		1
4	40.000	4778473	2.389E+04		1
5	20.000	2618362	2.618E+04		1

K0: 0.000000E+00 K1: 2.865441E+04 K2: -2.383896E+01
CD: 0.9999

Peak: DIBROMCLORMETH
R.T.(min): 31.395

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	70598	1.412E+04		1
2	4.0000	305094	1.525E+04		1
3	10.000	803305	1.607E+04		1
4	40.000	2978473	1.489E+04		1
5	20.000	1548135	1.548E+04		1

K0: 0.000000E+00 K1: 1.612858E+04 K2: -6.183748E+00
CD: 0.9999

Peak: 1,2-DIBRETHAN
R.T.(min): 32.478

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	16778	3.356E+03		1
2	4.0000	122109	6.105E+03		1
3	10.000	344290	6.886E+03		1
4	40.000	1323	6.615E+00		1
5	20.000	20538	2.054E+02		1

K0: 0.000000E+00 K1: 3.910160E+03 K2: -2.024348E+01
CD: 0.1394

Peak: CHLOROBENZENE
R.T.(min): 33.570

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	46790	9.358E+03		1
2	4.0000	200931	1.005E+04		1
3	10.000	527695	1.055E+04		1
4	40.000	1947958	9.740E+03		1
5	20.000	1018008	1.018E+04		1

K0: 0.000000E+00 K1: 1.063959E+04 K2: -4.496878E+00
CD: 0.9999

Peak: 1,1,1,2-TETCLETH
R.T.(min): 33.691

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	150898	3.018E+04		1
2	4.0000	638342	3.192E+04		1
3	10.000	1533697	3.067E+04		1
4	40.000	5533432	2.767E+04		1
5	20.000	3031284	3.031E+04		1

K0: 0.000000E+00 K1: 3.246170E+04 K2: -2.387074E+01

CD: 0.9999

Peak: BROMOFORM
R.T.(min): 36.922

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	42135	8.427E+03		1
2	4.0000	196671	9.834E+03		1
3	10.000	535571	1.071E+04		1
4	40.000	2050502	1.025E+04		1
5	20.000	1062001	1.062E+04		1

K0: 0.000000E+00 K1: 1.083491E+04 K2: -2.870275E+00
CD: 0.9998

Peak: 1,1,2,2-TETCLE
R.T.(min): 37.495

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	86580	1.732E+04		1
2	4.0000	354794	1.774E+04		1
3	10.000	909534	1.819E+04		1
4	40.000	3195235	1.598E+04		1
5	20.000	1731464	1.731E+04		1

K0: 0.000000E+00 K1: 1.868208E+04 K2: -1.352770E+01
CD: 1.0000

Peak: SURR. BFB
R.T.(min): 37.770
R/S: R

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	20.000	629503	6.295E+03		1
2	20.000	653126	6.531E+03		1
3	20.000	723164	7.232E+03		1
4	20.000	731594	7.316E+03		1
5	20.000	746625	7.466E+03		1

K0: 0.000000E+00 K1: 6.968024E+03 K2: 0.000000E+00
CD: Inconsistent Data

Peak: 1,3-DICLBENZ
R.T.(min): 41.781

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	71268	1.425E+04		1
2	4.0000	287620	1.438E+04		1

3	10.000	751734	1.503E+04	1
4	40.000	2735117	1.368E+04	1
5	20.000	1433545	1.434E+04	1

K0: 0.000000E+00 K1: 1.511570E+04 K2: -7.218262E+00
CD: 0.9999

Peak: 1,4-DICLBENZ
R.T.(min): 42.172

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	74294	1.486E+04		1
2	4.0000	297842	1.489E+04		1
3	10.000	783795	1.568E+04		1
4	40.000	2767465	1.384E+04		1
5	20.000	1479777	1.480E+04		1

K0: 0.000000E+00 K1: 1.587377E+04 K2: -1.019698E+01
CD: 0.9999

Peak: 1,2-DICLBENZ
R.T.(min): 43.523

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	73108	1.462E+04		1
2	4.0000	296304	1.482E+04		1
3	10.000	776753	1.554E+04		1
4	40.000	2802885	1.401E+04		1
5	20.000	1480049	1.480E+04		1

K0: 0.000000E+00 K1: 1.568142E+04 K2: -8.346308E+00
CD: 0.9999

Peak: 1,2-DIBR-3-CHLPR
R.T.(min): 46.428

Spl	Conc	Area	Cal.Fact.	% Rel SD	Runs
1	1.0000	18629	3.726E+03		1
2	4.0000	84996	4.250E+03		1
3	10.000	238226	4.765E+03		1
4	40.000	850697	4.253E+03		1
5	20.000	471752	4.718E+03		1

K0: 0.000000E+00 K1: 5.014998E+03 K2: -3.766486E+00
CD: 0.9993

UN-NAMED PEAK CALIBRATION FACTOR TABLE

***** No calibration data.

REPORT DISTRIBUTION TABLE

Printer No.	No. Reports	Plot?	Report size
4	0	Y	S

PROGRAM LIST

Program	Run string
RGEN	#D,GC,P4

CONTINUING CALIBRATION SUMMARY

TEST: 8010/8020

8020 STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 23A GC Column: RTX-502.2 ID: 0.53 (mm)

Calibration File ID: A_254_003
Daily Standard File ID: A_254_016

DATE(S) OF ANALYSIS FROM: _____ TO: _____	DATE OF ANALYSIS: 9-10-9(
TIME(S) OF ANALYSIS FROM: _____ TO: _____	TIME OF ANALYSIS: 23:08
	STANDARD ID: 10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
MTBE	6611	6709	1.5	13.79	13.73	13.85
BENZENE	18090	19151	5.9	21.81	21.75	21.87
TOLUENE	16779	17195	2.5	28.42	28.38	28.46
CHLOROBENZENE	17268	18142	5.1	33.59	33.56	33.62
ETHYLBENZENE	14992	15644	4.4	33.77	33.74	33.80
M+P-XYLENE	17201	18014	4.7	34.04	34.01	34.07
O-XYLENE	14725	15581	5.8	35.60	35.57	35.63
SURR. BFB	14415	15235	5.7	37.79	37.76	37.82
1,3-DICLBENZ	14754	16186	9.7	41.80	41.78	41.82
1,4-DICLBENZ	14092	15399	9.3	42.19	42.17	42.21
1,2-DICLBENZ	12007	12915	7.6	43.54	43.52	43.56

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_254_003
Daily Standard File ID: B_254_016

DATE(S) OF ANALYSIS	FROM: _____ TO: _____	DATE OF ANALYSIS:	9-10-96
TIME(S) OF ANALYSIS	FROM: _____ TO: _____	TIME OF ANALYSIS:	23:08
		STANDARD ID:	10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	3993	4050	1.4	5.14	5.12	5.16
CHLOROMETHANE	1336	1405	5.1	5.64	5.62	5.66
VINYL CHLORIDE	11014	10699	2.9	6.04	6.02	6.06
BROMOMETHANE	5338	5160	3.3	7.35	7.32	7.38
CHLOROETHANE	7820	14269	82.5 *	7.62	7.59	7.65
TRICLFLMETH	9943	9387	5.6	8.49	8.45	8.53
1,1-DICHLORETH	25383	26126	2.9	11.06	11.02	11.10
MECL2	29587	30141	1.9	13.10	13.06	13.14
t-1,2-DICHLETH	25202	25810	2.4	14.25	14.21	14.29
1,1-DICHLETHAN	25321	26037	2.8	15.95	15.91	15.99
c-1,2-DICHLETH	25329	25799	1.9	18.26	18.22	18.30
CHLOROFORM	32415	33318	2.8	18.84	18.80	18.89
1,1,1-TRICLETH	27490	28394	3.3	20.29	20.25	20.33
CARBON TET	29856	31125	4.3	21.19	21.15	21.23
1,2-DICHLETHAN	24822	25767	3.8	21.78	21.74	21.82
TRICHLOROETHEN	28176	29043	3.1	23.96	23.92	24.00
1,2-DICHLPROPA	22894	23596	3.1	24.60	24.56	24.64
BROMODICHLMETH	23383	24324	4.0	25.41	25.37	25.45
c-1,3-DICLPROP	21279	22113	3.9	27.32	27.28	27.36
t-1,3-DICLPROP	19566	20549	5.0	29.08	29.04	29.12
1,1,2-TRICLETH	25606	27207	6.3	29.61	29.57	29.65
TETRACLORETHEN	29746	30317	1.9	30.69	30.65	30.73
DIBROMCLORMETH	16918	17942	6.1	31.42	31.38	31.46
CHLOROBENZENE	10042	10583	5.4	33.59	33.55	33.63
1,1,1,2-TETCLETH	30674	31216	1.8	33.74	5.74	61.74
SURR. BFB	7375	7766	5.3	37.78	37.74	37.82
BROMOFORM	11668	12653	8.4	36.94	36.90	36.98
1,1,2,2-TETCLE	19268	20969	8.8	37.51	37.47	37.55
1,3-DICLBENZ	16261	17324	6.5	41.80	41.76	41.84
1,4-DICLBENZ	16686	17768	6.5	42.18	42.14	42.22
1,2-DICLBENZ	16585	17733	6.9	43.54	43.50	43.58

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_254_003
Daily Standard File ID: B_254_017

DATE(S) OF ANALYSIS	FROM:		DATE OF ANALYSIS: 9-11-96
	TO:		TIME OF ANALYSIS: 00:05
TIME(S) OF ANALYSIS	FROM:		STANDARD ID:
	TO:		10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	3993	4053	1.5	5.13	5.11	5.15
CHLOROMETHANE	1336	1405	5.1	5.63	5.61	5.65
VINYL CHLORIDE	11014	11129	1.0	6.03	6.01	6.05
BROMOMETHANE	5338	5507	3.2	7.33	7.30	7.36
CHLOROETHANE	7820	8384	7.2	7.59	7.56	7.62
TRICLFLMETH	9943	10199	2.6	8.47	8.43	8.51
1,1-DICHLORETH	25383	25642	1.0	11.04	11.00	11.08
MECL2	29587	29889	1.0	13.07	13.03	13.11
t-1,2-DICHLETH	25202	25312	0.4	14.22	14.18	14.26
1,1-DICHLETHAN	25321	25559	0.9	15.92	15.88	15.96
c-1,2-DICHLETH	25329	25492	0.6	18.24	18.20	18.28
CHLOROFORM	32415	32786	1.1	18.82	18.78	18.86
1,1,1-TRICLETH	27490	28268	2.8	20.26	20.22	20.30
CARBON TET	29856	30758	3.0	21.16	21.12	21.20
1,2-DICHLETHAN	24822	25417	2.4	21.75	21.71	21.79
TRICHLOROETHEN	28176	28734	2.0	23.94	23.90	23.98
1,2-DICHLPROPA	22894	23195	1.3	24.57	24.53	24.61
BROMODICHLMETH	23383	23798	1.8	25.39	25.35	25.43
c-1,3-DICLPROP	21279	21529	1.2	27.30	27.26	27.34
t-1,3-DICLPROP	19566	19905	1.7	29.05	29.01	29.09
1,1,2-TRICLETH	25606	26284	2.6	29.59	29.55	29.63
TETRACLORETHEN	29746	30176	1.4	30.67	30.62	30.70
DIBROMCLORMETH	16918	17325	2.4	31.39	31.35	31.43
CHLOROBENZENE	10042	10049	0.1	33.57	33.53	33.61
1,1,1,2-TETCLETH	30674	32064	4.5	33.72	5.72	61.72
SURR. BFB	7375	7760	5.2	37.77	37.73	37.81
BROMOFORM	11668	11983	2.7	36.92	36.88	36.96
1,1,2,2-TETCLE	19268	19762	2.6	37.49	37.45	37.53
1,3-DICLBENZ	16261	16458	1.2	41.78	41.74	41.82
1,4-DICLBENZ	16686	16947	1.6	42.17	42.13	42.21
1,2-DICLBENZ	16585	16907	1.9	43.52	43.48	43.56

"*" outside of quantitation limit.

8020 STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 23A GC Column: RTX-502.2 ID: 0.53 (mm)

Calibration File ID: A_254_003
Daily Standard File ID: A_254_028 Ending Standard

DATE(S) OF ANALYSIS	FROM:	_____	DATE OF ANALYSIS: 9-11-96
	TO:	_____	TIME OF ANALYSIS: 10:54
TIME(S) OF ANALYSIS	FROM:	_____	STANDARD ID:
	TO:	_____	10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
MTBE	6611	6618	0.1	13.76	13.70	13.82
BENZENE	18090	18612	2.9	21.78	21.72	21.84
TOLUENE	16779	17250	2.8	28.40	28.36	28.44
CHLOROBENZENE	17268	17927	3.8	33.57	33.54	33.60
ETHYLBENZENE	14992	15519	3.5	33.76	33.73	33.79
M+P-XYLENE	17201	17828	3.6	34.03	33.99	34.06
O-XYLENE	14725	15140	2.8	35.58	35.55	35.61
SURR. BFB	14415	14861	3.1	37.77	37.74	37.80
1,3-DICLBENZ	14754	15206	3.1	41.78	41.76	41.80
1,4-DICLBENZ	14092	14541	3.2	42.17	42.15	42.19
1,2-DICLBENZ	12007	12403	3.3	43.52	43.50	43.54

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_254_003
Daily Standard File ID: B_254_028 Ending Standard

DATE(S) OF ANALYSIS	FROM: _____ TO: _____	DATE OF ANALYSIS:	9-11-96
TIME(S) OF ANALYSIS	FROM: _____ TO: _____	TIME OF ANALYSI STANDARD ID:	10:54 10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D		RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	3993	2415	39.5		5.14	5.11	5.16
CHLOROMETHANE	1336	680	49.1	*	5.63	5.61	5.65
VINYL CHLORIDE	11014	9494	13.8		6.03	6.01	6.05
BROMOMETHANE	5338	3747	29.8		7.34	7.31	7.37
CHLOROETHANE	7820	5520	29.4	*	7.60	7.57	7.63
TRICLFLMETH	9943	9199	7.5		8.47	8.43	8.51
1,1-DICHLORETH	25383	26055	2.6		11.04	11.00	11.08
MECL2	29587	29984	1.3		13.07	13.03	13.11
t-1,2-DICHLETH	25202	25904	2.8		14.22	14.18	14.26
1,1-DICHLETHAN	25321	25944	2.5		15.92	15.89	15.97
c-1,2-DICHLETH	25329	25761	1.7		18.24	18.20	18.28
CHLOROFORM	32415	33433	3.1		18.82	18.78	18.86
1,1,1-TRICLETH	27490	28489	3.6		20.26	20.22	20.30
CARBON TET	29856	31468	5.4		21.16	21.12	21.20
1,2-DICHLETHAN	24822	25340	2.1		21.76	21.72	21.80
TRICHLOROETHEN	28176	28818	2.3		23.94	23.90	23.98
1,2-DICHLPROPA	22894	23541	2.8		24.57	24.53	24.61
BROMODICHLMETH	23383	23862	2.1		25.39	25.35	25.43
c-1,3-DICLPROP	21279	22007	3.4		27.30	27.26	27.34
t-1,3-DICLPROP	19566	19963	2.0		29.06	29.02	29.09
1,1,2-TRICLETH	25606	26075	1.8		29.59	29.55	29.63
TETRACLORETHEN	29746	31436	5.7		30.67	30.63	30.71
DIBROMCLORMETH	16918	17636	4.2		31.40	31.36	31.44
CHLOROBENZENE	10042	9897	1.4		33.57	33.53	33.61
1,1,1,2-TETCLETH	30674	31731	3.4		33.72	5.72	61.72
SURR. BFB	7375	7604	3.1		37.77	37.73	37.81
BROMOFORM	11668	11336	2.8		36.92	36.88	36.96
1,1,2,2-TETCLE	19268	18942	1.7		37.49	37.45	37.53
1,3-DICLBENZ	16261	16547	1.8		41.78	41.74	41.82
1,4-DICLBENZ	16686	17286	3.6		42.17	42.13	42.21
1,2-DICLBENZ	16585	17012	2.6		43.52	43.48	43.56

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_254_003
Daily Standard File ID: B_254_029 Ending Standard

DATE(S) OF ANALYSIS	FROM: _____ TO: _____	DATE OF ANALYSIS: 9-11-96 TIME OF ANALYSIS: 11:52	
TIME(S) OF ANALYSIS	FROM: _____ TO: _____	STANDARD ID: 10 PPB 8010/8020 STD	

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D		RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	3993	2601	34.8		5.12	5.10	5.14
CHLOROMETHANE	1336	662	50.5	*	5.63	5.61	5.65
VINYL CHLORIDE	11014	9690	12.0		6.03	6.01	6.05
BROMOMETHANE	5338	3807	28.7		7.33	7.30	7.36
CHLOROETHANE	7820	5588	28.6	*	7.59	7.56	7.62
TRICLFLMETH	9943	9007	9.4		8.46	8.42	8.51
1,1-DICHLORETH	25383	25485	0.4		11.03	10.99	11.07
MECL2	29587	29814	0.8		13.07	13.03	13.11
t-1,2-DICHLETH	25202	25437	0.9		14.21	14.17	14.25
1,1-DICHLETHAN	25321	25412	0.4		15.92	15.88	15.96
c-1,2-DICHLETH	25329	25240	0.4		18.23	18.19	18.27
CHLOROFORM	32415	32734	1.0		18.81	18.77	18.85
1,1,1-TRICLETH	27490	27643	0.6		20.25	20.22	20.30
CARBON TET	29856	30130	0.9		21.15	21.11	21.19
1,2-DICHLETHAN	24822	25035	0.9		21.75	21.71	21.79
TRICHLOROETHEN	28176	28044	0.5		23.93	23.89	23.97
1,2-DICHLPROPA	22894	22942	0.2		24.57	24.53	24.61
BROMODICHLMETH	23383	23543	0.7		25.39	25.35	25.43
c-1,3-DICLPROP	21279	21465	0.9		27.29	27.25	27.33
t-1,3-DICLPROP	19566	19579	0.1		29.05	29.01	29.09
1,1,2-TRICLETH	25606	26106	2.0		29.59	29.55	29.63
TETRACLORETHEN	29746	30253	1.7		30.66	30.62	30.70
DIBROMCLORMETH	16918	17421	3.0		31.39	31.35	31.43
CHLOROBENZENE	10042	8660	13.8		33.57	33.53	33.61
1,1,1,2-TETCLETH	30674	27436	10.6		33.71	5.71	61.71
SURR. BFB	7375	6684	9.4		37.76	37.72	37.80
BROMOFORM	11668	9986	14.4		36.91	36.87	36.95
1,1,2,2-TETCLE	19268	17178	10.8		37.48	37.45	37.53
1,3-DICLBENZ	16261	14425	11.3		41.77	41.73	41.81
1,4-DICLBENZ	16686	14994	10.1		42.16	42.12	42.20
1,2-DICLBENZ	16585	14840	10.5		43.51	43.47	43.55

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_017

DATE(S) OF ANALYSIS	FROM: _____ TO: _____	DATE OF ANALYSIS: 9-12-96 TIME OF ANALYSIS: 17:12	
TIME(S) OF ANALYSIS	FROM: _____ TO: _____	STANDARD ID: 10 PPB 8010/8020 STD	

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	3442	19.6	5.14	5.12	5.16
CHLOROMETHANE	815	1188	45.7 *	5.63	5.61	5.65
VINYL CHLORIDE	8733	10214	17.0	6.03	6.01	6.05
BROMOMETHANE	3658	4449	21.6	7.34	7.31	7.37
CHLOROETHANE	5178	11369	119.6 *	7.62	7.59	7.65
TRICLFLMETH	8431	8490	0.7	8.48	8.44	8.52
1,1-DICHLORETH	22606	24641	9.0	11.04	11.00	11.08
MECL2	27114	28071	3.5	13.06	13.02	13.10
t-1,2-DICHLETH	23307	24480	5.0	14.21	14.17	14.25
1,1-DICHLETHAN	23601	24512	3.9	15.91	15.87	15.95
c-1,2-DICHLETH	22903	24497	7.0	18.22	18.18	18.26
CHLOROFORM	30328	31598	4.2	18.80	18.76	18.84
1,1,1-TRICLETH	25778	26576	3.1	20.25	20.21	20.29
CARBON TET	28779	29716	3.3	21.14	21.10	21.18
1,2-DICHLETHAN	23082	23507	1.8	21.74	21.70	21.78
TRICHLOROETHEN	26125	27379	4.8	23.92	23.88	23.96
1,2-DICHLPROPA	21203	22043	4.0	24.56	24.52	24.60
BROMODICHLMETH	21651	22388	3.4	25.37	25.33	25.41
c-1,3-DICLPROP	19756	20613	4.3	27.28	27.24	27.32
t-1,3-DICLPROP	18119	18797	3.7	29.04	29.00	29.08
1,1,2-TRICLETH	24049	24573	2.2	29.57	29.53	29.61
TETRACLORETHEN	27844	29592	6.3	30.65	30.61	30.69
DIBROMCLORMETH	16066	16474	2.5	31.38	31.34	31.42
CHLOROBENZENE	10554	9671	8.4	33.56	33.52	33.60
1,1,1,2-TETCLETH	30674 Ø	29802 Ø	~~0.0~~ 2.8	33.70	5.70	61.70
SURR. BFB	7232	7322	1.2	37.75	37.71	37.79
BROMOFORM	10711	10674	0.4	36.90	36.86	36.94
1,1,2,2-TETCLE	18191	17955	1.3	37.48	37.44	37.52
1,3-DICLBENZ	15035	15670	4.2	41.76	41.72	41.80
1,4-DICLBENZ	15676	16110	2.8	42.16	42.12	42.20
1,2-DICLBENZ	15535	15742	1.3	43.51	43.47	43.55

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_018

DATE(S) OF ANALYSIS	FROM: _____ TO: _____	DATE OF ANALYSIS:	9-12-96
TIME(S) OF ANALYSIS	FROM: _____ TO: _____	TIME OF ANALYSIS STANDARD ID:	18:10 10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	3152	9.5	5.12	5.10	5.14
CHLOROMETHANE	815	1132	38.8	5.62	5.60	5.64
VINYL CHLORIDE	8733	10215	17.0	6.03	6.01	6.05
BROMOMETHANE	3658	4557	24.6	7.31	7.28	7.34
CHLOROETHANE	5178	7361	42.2 *	7.57	7.54	7.60
TRICLFLMETH	8431	8378	0.6	8.44	8.40	8.48
1,1-DICHLORETH	22606	24124	6.7	11.01	10.97	11.05
MECL2	27114	27941	3.0	13.05	13.01	13.09
t-1,2-DICHLETH	23307	23912	2.6	14.18	14.14	14.22
1,1-DICHLETHAN	23601	24073	2.0	15.89	15.85	15.93
c-1,2-DICHLETH	22903	23989	4.7	18.20	18.17	18.25
CHLOROFORM	30328	30952	2.1	18.79	18.75	18.83
1,1,1-TRICLETH	25778	26151	1.4	20.23	20.19	20.27
CARBON TET	28779	28584	0.7	21.12	21.08	21.16
1,2-DICHLETHAN	23082	23975	3.9	21.72	21.68	21.76
TRICHLOROETHEN	26125	26757	2.4	23.91	23.87	23.95
1,2-DICHLPROPA	21203	21809	2.9	24.54	24.50	24.58
BROMODICHLMETH	21651	22170	2.4	25.36	25.32	25.40
c-1,3-DICLPROP	19756	20434	3.4	27.27	27.23	27.31
t-1,3-DICLPROP	18119	18798	3.7	29.03	28.99	29.07
1,1,2-TRICLETH	24049	25036	4.1	29.57	29.53	29.61
TETRACLORETHEN	27844	28304	1.6	30.64	30.60	30.68
DIBROMCLORMETH	16066	16179	0.7	31.37	31.33	31.41
CHLOROBENZENE	10554	8909	15.6	33.54	33.51	33.58
1,1,1,2-TETCLETH	30674 Ø	28136 Ø	~~0.0~~ 8.3	33.69	5.69	61.69
SURR. BFB	7232	7063	2.3	37.74	37.70	37.78
BROMOFORM	10711	10966	2.4	36.89	36.85	36.93
1,1,2,2-TETCLE	18191	18876	3.8	37.46	37.42	37.50
1,3-DICLBENZ	15035	15232	1.3	41.75	41.71	41.79
1,4-DICLBENZ	15676	15738	0.4	42.14	42.10	42.18
1,2-DICLBENZ	15535	15669	0.9	43.49	43.45	43.53

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53 (mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_030

DATE(S) OF ANALYSIS	FROM: _____	DATE OF ANALYSIS:	9-13-96
	TO: _____	TIME OF ANALYSIS	07:09
TIME(S) OF ANALYSIS	FROM: _____	STANDARD ID:	
	TO: _____	10 PPB 8010/8020 STD	

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	3284	14.1	5.14	5.12	5.16
CHLOROMETHANE	815	958	17.5	5.65	5.63	5.67
VINYL CHLORIDE	8733	9453	8.2	6.06	6.04	6.08
BROMOMETHANE	3658	5644	54.3 *	7.42	7.39	7.45
CHLOROETHANE	5178	14636	182.6 *	7.64	7.61	7.67
TRICLFLMETH	8431	8931	5.9	8.51	8.47	8.55
1,1-DICHLORETH	22606	26235	16.1	11.07	11.03	11.11
MECL2	27114	29706	9.6	13.11	13.07	13.15
t-1,2-DICHLETH	23307	25682	10.2	14.26	14.22	14.30
1,1-DICHLETHAN	23601	25466	7.9	15.96	15.92	16.00
c-1,2-DICHLETH	22903	25493	11.3	18.27	18.23	18.31
CHLOROFORM	30328	32826	8.2	18.85	18.81	18.89
1,1,1-TRICLETH	25778	28012	8.7	20.30	20.26	20.34
CARBON TET	28779	31029	7.8	21.19	21.15	21.23
1,2-DICHLETHAN	23082	24688	7.0	21.78	21.75	21.83
TRICHLOROETHEN	26125	28615	9.5	23.97	23.93	24.01
1,2-DICHLPROPA	21203	22988	8.4	24.60	24.56	24.64
BROMODICHLMETH	21651	23154	6.9	25.42	25.38	25.46
c-1,3-DICLPROP	19756	21273	7.7	27.33	27.29	27.37
t-1,3-DICLPROP	18119	18621	2.8	29.08	29.04	29.12
1,1,2-TRICLETH	24049	24176	0.5	29.62	29.58	29.66
TETRACLORETHEN	27844	29277	5.1	30.69	30.65	30.73
DIBROMCLORMETH	16066	16352	1.8	31.42	31.38	31.46
CHLOROBENZENE	10554	9668	8.4	33.59	33.55	33.63
1,1,1,2-TETCLETH	30674 ∅	29818 ∅	~~0.0~~ 2.8	33.74	5.74	61.74
SURR. BFB	7232	7280	0.7	37.78	37.74	37.82
BROMOFORM	10711	10914	1.9	36.94	36.90	36.98
1,1,2,2-TETCLE	18191	18161	0.2	37.51	37.47	37.55
1,3-DICLBENZ	15035	15972	6.2	41.79	41.75	41.83
1,4-DICLBENZ	15676	16655	6.2	42.18	42.14	42.22
1,2-DICLBENZ	15535	16389	5.5	43.53	43.49	43.57

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53 (mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_031

DATE(S) OF ANALYSIS	FROM: _____	DATE OF ANALYSIS:	9-13-96
	TO: _____	TIME OF ANALYSIS:	08:06
TIME(S) OF ANALYSIS	FROM: _____	STANDARD ID:	
	TO: _____	10 PPB 8010/8020 STD	

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	2377	17.4	5.13	5.11	5.15
CHLOROMETHANE	815	771	5.4	5.63	5.61	5.65
VINYL CHLORIDE	8733	8302	4.9	6.01	5.99	6.03
BROMOMETHANE	3658	4183	14.4	7.34	7.31	7.37
CHLOROETHANE	5178	6547	26.4 *	7.60	7.57	7.63
TRICLFLMETH	8431	9750	15.6	8.48	8.44	8.52
1,1-DICHLORETH	22606	21000	7.1	11.02	10.98	11.06
MECL2	27114	23521	13.3	13.05	13.01	13.09
t-1,2-DICHLETH	23307	20584	11.7	14.21	14.17	14.25
1,1-DICHLETHAN	23601	20637	12.6	15.91	15.87	15.95
c-1,2-DICHLETH	22903	20855	8.9	18.22	18.18	18.26
CHLOROFORM	30328	26847	11.5	18.81	18.77	18.85
1,1,1-TRICLETH	25778	23203	10.0	20.25	20.21	20.29
CARBON TET	28779	25831	10.2	21.14	21.10	21.18
1,2-DICHLETHAN	23082	20665	10.5	21.74	21.70	21.78
TRICHLOROETHEN	26125	23392	10.5	23.92	23.88	23.96
1,2-DICHLPROPA	21203	19011	10.3	24.56	24.52	24.60
BROMODICHLMETH	21651	19248	11.1	25.38	25.34	25.42
c-1,3-DICLPROP	19756	17801	9.9	27.28	27.25	27.32
t-1,3-DICLPROP	18119	16292	10.1	29.04	29.00	29.08
1,1,2-TRICLETH	24049	21547	10.4	29.58	29.54	29.62
TETRACLORETHEN	27844	25174	9.6	30.65	30.61	30.69
DIBROMCLORMETH	16066	13985	13.0	31.38	31.34	31.42
CHLOROBENZENE	10554	8311	21.3	33.56	33.52	33.60
1,1,1,2-TETCLETH	30674 Ø	25661 Ø	~~0~~ 16.3	33.71	5.71	61.71
SURR. BFB	7232	6153	14.9	37.76	37.72	37.80
BROMOFORM	10711	9541	10.9	36.91	36.87	36.95
1,1,2,2-TETCLE	18191	16344	10.2	37.48	37.44	37.52
1,3-DICLBENZ	15035	13421	10.7	41.77	41.73	41.81
1,4-DICLBENZ	15676	13994	10.7	42.16	42.12	42.20
1,2-DICLBENZ	15535	13970	10.1	43.51	43.47	43.55

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_040 Ending Standard

DATE(S) OF ANALYSIS FROM: _____ TO: _____	DATE OF ANALYSIS: 9-13-96
TIME(S) OF ANALYSIS FROM: _____ TO: _____	TIME OF ANALYSIS: 23:52
	STANDARD ID: 10 PPB 8010/8020 STD

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	3000	4.3	5.15	5.13	5.17
CHLOROMETHANE	815	911	11.8	5.66	5.64	5.68
VINYL CHLORIDE	8733	9030	3.4	6.06	6.04	6.08
BROMOMETHANE	3658	4338	18.6	7.41	7.38	7.44
CHLOROETHANE	5178	14417	178.4 *	7.66	7.63	7.69
TRICLFLMETH	8431	10101	19.8	8.53	8.49	8.57
1,1-DICHLORETH	22606	23619	4.5	11.08	11.04	11.12
MECL2	27114	28544	5.3	13.10	13.06	13.14
t-1,2-DICHLETH	23307	24616	5.6	14.25	14.21	14.29
1,1-DICHLETHAN	23601	24712	4.7	15.95	15.91	15.99
c-1,2-DICHLETH	22903	23878	4.3	18.26	18.22	18.30
CHLOROFORM	30328	31620	4.3	18.83	18.80	18.88
1,1,1-TRICLETH	25778	26897	4.3	20.28	20.24	20.32
CARBON TET	28779	29658	3.1	21.18	21.14	21.22
1,2-DICHLETHAN	23082	23919	3.6	21.77	21.73	21.81
TRICHLOROETHEN	26125	27351	4.7	23.95	23.91	23.99
1,2-DICHLPROPA	21203	22276	5.1	24.59	24.55	24.63
BROMODICHLMETH	21651	22783	5.2	25.40	25.36	25.44
c-1,3-DICLPROP	19756	20834	5.5	27.31	27.27	27.35
t-1,3-DICLPROP	18119	19021	5.0	29.07	29.03	29.11
1,1,2-TRICLETH	24049	25354	5.4	29.60	29.56	29.64
TETRACLORETHEN	27844	29439	5.7	30.68	30.64	30.72
DIBROMCLORMETH	16066	16588	3.2	31.41	31.37	31.45
CHLOROBENZENE	10554	11105	5.2	33.58	33.54	33.62
1,1,1,2-TETCLETH	0	0	0.0	0.00	-28.00	28.00
SURR. BFB	7232	7123	1.5	37.78	37.74	37.82
BROMOFORM	10711	11228	4.8	36.93	36.89	36.97
1,1,2,2-TETCLE	18191	19233	5.7	37.50	37.46	37.54
1,3-DICLBENZ	15035	15668	4.2	41.79	41.75	41.83
1,4-DICLBENZ	15676	16247	3.6	42.18	42.14	42.22
1,2-DICLBENZ	15535	16122	3.8	43.53	43.49	43.57

"*" outside of quantitation limit.

GC VOLATILES STANDARD SUMMARY

Lab Name: Quanterra, Santa Ana Contract: _____

Lab Code: QES Case No. _____ SAS No. _____ SDG No.: _____

Instrument ID: Channel 53A GC Column: RTX-502.2 ID: 0.53(mm)

Calibration File ID: B_256_003
Daily Standard File ID: B_256_041 Ending Standard

DATE(S) OF ANALYSIS	FROM: _____	DATE OF ANALYSIS:	9-14-96
	TO: _____	TIME OF ANALYSIS:	00:49
TIME(S) OF ANALYSIS	FROM: _____	STANDARD ID:	
	TO: _____	10 PPB 8010/8020 STD	

COMPOUND	INITIAL CALIBRATION FACTOR	CONTINUING CALIBRATION FACTOR	%D	RT	DAILY RT WINDOW FROM	DAILY RT WINDOW TO
DICLDIFLMETH	2878	2928	1.8	5.13	5.11	5.15
CHLOROMETHANE	815	863	5.9	5.64	5.62	5.66
VINYL CHLORIDE	8733	9049	3.6	6.05	6.03	6.07
BROMOMETHANE	3658	3873	5.9	7.38	7.34	7.41
CHLOROETHANE	5178	5468	5.6	7.63	7.60	7.66
TRICLFLMETH	8431	9689	14.9	8.50	8.46	8.54
1,1-DICHLORETH	22606	23680	4.7	11.05	11.01	11.09
MECL2	27114	28785	6.2	13.07	13.03	13.11
t-1,2-DICHLETH	23307	24498	5.1	14.22	14.18	14.26
1,1-DICHLETHAN	23601	24662	4.5	15.92	15.88	15.96
c-1,2-DICHLETH	22903	24096	5.2	18.23	18.19	18.27
CHLOROFORM	30328	32068	5.7	18.81	18.77	18.85
1,1,1-TRICLETH	25778	27149	5.3	20.25	20.21	20.29
CARBON TET	28779	29753	3.4	21.15	21.11	21.19
1,2-DICHLETHAN	23082	24570	6.4	21.74	21.70	21.78
TRICHLOROETHEN	26125	27419	5.0	23.93	23.89	23.97
1,2-DICHLPROPA	21203	22634	6.8	24.56	24.52	24.60
BROMODICHLMETH	21651	23305	7.6	25.38	25.34	25.42
c-1,3-DICLPROP	19756	20940	6.0	27.29	27.25	27.33
t-1,3-DICLPROP	18119	19431	7.2	29.05	29.01	29.09
1,1,2-TRICLETH	24049	26140	8.7	29.58	29.54	29.62
TETRACLORETHEN	27844	29156	4.7	30.66	30.62	30.70
DIBROMCLORMETH	16066	17309	7.7	31.39	31.35	31.43
CHLOROBENZENE	10554	10946	3.7	33.56	33.52	33.60
1,1,1,2-TETCLETH	0	0	0.0	0.00	-28.00	28.00
SURR. BFB	7232	7093	1.9	37.76	37.72	37.80
BROMOFORM	10711	11580	8.1	36.91	36.87	36.95
1,1,2,2-TETCLE	18191	19881	9.3	37.49	37.45	37.53
1,3-DICLBENZ	15035	16038	6.7	41.78	41.74	41.82
1,4-DICLBENZ	15676	16672	6.4	42.17	42.12	42.20
1,2-DICLBENZ	15535	16907	8.8	43.52	43.48	43.56

"*" outside of quantitation limit.

Project number: 121123

QA/QC REPORT (Continued)

II. MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD)

DATE PERFORMED: 12 SEP 96 ANALYTICAL METHOD: 8010
BATCH #: 12-SEP-96-AA
LAB SAMPLE ID: 121016-0001-SA UNIT: ug/kg

ANALYTE	SAMPLE RESULT	SPIKE CONC	MS	%MS	SPIKE CONC (DUP)	MSD	%MSD	RPD	MS/MSD LIMIT	RPD LIMIT
1,1-Dichloroethene	ND	10.0	10.3	103	10.0	8.46	85	20	18-104	34
1,1-Dichloroethane	ND	10.0	10.0	100	10.0	8.71	87	14	32-103	35
Chloroform	ND	10.0	10.1	101	10.0	8.89	89	13	38-113	37
1,2-Dichloroethane	ND	10.0	9.88	99	10.0	8.95	90	9.8	38-112	46
Trichloroethene	ND	10.0	10.1	101	10.0	8.66	87	15	34-126	38
Tetrachloroethene	ND	10.0	9.54	95	10.0	8.24	82	15	53-123	39

Project number: 121123

QA/QC REPORT (Continued)

II. MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD)

DATE PERFORMED: 11 SEP 96 ANALYTICAL METHOD: 8020
BATCH #: 11-SEP-96-AA
LAB SAMPLE ID: 121123-0001-SA UNIT: ug/kg

ANALYTE	SAMPLE RESULT	SPIKE CONC	MS	%MS	SPIKE CONC (DUP)	MSD	%MSD	RPD	MS/MSD LIMIT	RPD LIMIT
Benzene	ND	10.0	7.63	76	10.0	7.58	76	0.60	41-128	20
Toluene	ND	10.0	5.48	55	10.0	5.49	55	0.11	39-137	20
Ethylbenzene	ND	10.0	3.88	39	10.0	3.96	40	2.0	46-127	20
Xylenes (total)	ND	30.0	11.2	37	30.0	11.4	38	1.6	38-124	30

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 12 SEP 96
SUPPLY SOURCE: Accustandard
LOT NUMBER: 105-067,105-253,016-069
DATE OF SOURCE: 03/11/96

ANALYTICAL METHOD: 8010
LAB LCS I.D.: 12 SEP 96-AFX 12 SEP 96-AFX

UNIT: ug/kg

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
1,1-Dichloroethene	10.0	10.8	108	80-120
1,1-Dichloroethane	10.0	10.9	109	80-120
Chloroform	10.0	11.0	110	80-120
1,2-Dichloroethane	10.0	11.0	110	80-120
Trichloroethene	10.0	11.0	110	80-120
Tetrachloroethene	10.0	10.8	108	80-120

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 11 SEP 96
SUPPLY SOURCE: Accustandard
LOT NUMBER: 105-067,105-253,016-069
DATE OF SOURCE: 03/11/96

ANALYTICAL METHOD: 8010
LAB LCS I.D.: 12 SEP 96-AFX 11 SEP 96-AFX

UNIT: ug/kg

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
1,1-Dichloroethene	10.0	8.93	89	80-120
1,1-Dichloroethane	10.0	9.73	97	80-120
Chloroform	10.0	9.81	98	80-120
1,2-Dichloroethane	10.0	9.68	97	80-120
Trichloroethene	10.0	10.7	107	80-120
Tetrachloroethene	10.0	23.7	237	80-120

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 11 SEP 96
SUPPLY SOURCE: Accustandard
LOT NUMBER: 085-007
DATE OF SOURCE: 03/11/96

ANALYTICAL METHOD: 8020
LAB LCS I.D.: 11 SEP 96-AFX 11 SEP 96-AFX

UNIT: ug/kg

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
Benzene	10.0	9.75	98	80-120
Toluene	10.0	9.68	97	80-120
Ethylbenzene	10.0	9.70	97	80-120
Xylenes (total)	30.0	29.5	98	80-120

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 10 SEP 96
SUPPLY SOURCE: Accustandard
LOT NUMBER: 105-067,105-253,016-069
DATE OF SOURCE: 03/11/96

ANALYTICAL METHOD: 8010
LAB LCS I.D.: 10 SEP 96-AFX 10 SEP 96-AFX

UNIT: ug/L

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
1,1-Dichloroethene	10.0	9.65	96	80-120
1,1-Dichloroethane	10.0	10.4	104	80-120
Chloroform	10.0	10.6	106	80-120
1,2-Dichloroethane	10.0	10.5	105	80-120
Trichloroethene	10.0	10.4	104	80-120
Tetrachloroethene	10.0	9.86	99	80-120

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 10 SEP.96
SUPPLY SOURCE: Accustandard
LOT NUMBER: 085-007
DATE OF SOURCE: 03/11/96

ANALYTICAL METHOD: 8020
LAB LCS I.D.: 10 SEP 96-AFX 10 SEP 96-AFX

UNIT: ug/L

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
Benzene	10.0	10.2	102	80-120
Toluene	10.0	10.1	101	80-120
Ethylbenzene	10.0	10.1	101	80-120
Xylenes (total)	30.0	30.4	101	80-120

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: EPA 418.1 REPORTING UNIT: MG/KG

DATE ANALYZED			11 SEP 96	11 SEP 96		
DATE EXTRACTED			10 SEP 96	10 SEP 96		
LAB SAMPLE ID			121123-0001-SA	121123-0002-SA		
CLIENT SAMPLE ID			G4-5	G5-7		
EXTRACTION SOLVENT			FREON-113	FREON-113		
EXTRACTION METHOD			418.1	418.1		
DILUTION FACTOR			50	5.0		
COMPOUND		CRDL				
TPH, Recoverable		10	2000	170		
SURROGATE	SPK CONC	ACP%	%RC	%RC	%RC	%RC
N/A						

Project No: 121123

ANALYTICAL RESULT FOR ORGANICS

METHOD: EPA 418.1 REPORTING UNIT: MG/KG

DATE ANALYZED			11 SEP 96			
DATE EXTRACTED			10 SEP 96			
LAB SAMPLE ID			10 SEP 96-BX 10 SEP 96-BX			
CLIENT SAMPLE ID			METHOD BLANK			
EXTRACTION SOLVENT			FREON-113			
EXTRACTION METHOD			418.1			
DILUTION FACTOR			1.0			
COMPOUND		CRDL				
TPH, Recoverable		10	< 10			
SURROGATE	SPK CONC	ACP%	%RC			
N/A						

QA/QC REPORT

I. . Calibration Standard

(A). Initial Calibration **(See instrument printouts)**

RAW DATA

FOR

GENCHEM

PROJECT: 121123

TRPH / Oil and Grease (IR)

Method: 418.1 | Cal Source: IN-96-71 | Date: 091196
Matrix: solid | ICV Source: IN-96-43 | Analyst: lm
Instr ID: IR | Default RL: 10 | Reviewed: 09/12/96
Cal Ref: 091196 | Units: mg/Kg
TRPH.WK3 (ver 04/08/96)

Std Conc(Y)	IR Reading(X)	RF
13:25 40.0	40.0	1.00
13:20 20.0	20.6	1.03
13:15 5.0	5.4	1.08
13:10 0.0	0.0	

Regression Output:	
Constant	-0.28
Std Err of Y Est	0.36
R Squared	1.00
No. of Observations	4.00
Degrees of Freedom	2.00
X Coefficient(s)	1.00
Std Err of Coef.	0.01

r-value: 0.99986 ✓

Ave RF: 1.03667
RSD: 3.89851

	ID	Sample Vol	Extract Vol mL	Instr Reading ug/mL	Prep Factor*	Dil	RL	Result
15:35	ICV	1.00	1.00	31.2	1.0	1	10	31
15:40	ICB	1.00	1.00	0.5	1.0	1	10	ND
15:45	MB	25.00	50.00	1.9	1.0	1	10	ND ~~ND~~ 3.2 [J]
15:47	LCS	25.00	50.00	19.9	1.0	1	10	39.3
15:50	051260-8	25.00	50.00	4.6	1.0	1	10	ND
15:55	051260-9	25.00	50.00	1.9	1.0	1	10	ND
16:00	051260-12	25.00	50.00	1.8	1.0	1	10	ND
16:05	051260-13	25.00	50.00	1.9	1.0	1	10	ND
16:10	051260-14	25.00	50.00	1.6	1.0	1	10	ND
16:12	051260-16	25.00	50.00	2.3	1.0	1	10	ND
16:15	051260-17	25.00	50.00	2.0	1.0	1	10	ND
16:20	051260-17MS	25.00	50.00	18.3	1.0	1	10	36.1
16:22	CCV	1.00	1.00	31.6	1.0	1	10	31.4
16:25	CCB	1.00	1.00	0.2	1.0	1	10	ND
16:27	051260-17MS	25.00	50.00	16.7	1.0	1	10	32.9
16:30	121123-1	25.00	50.00	20.5	1.0	50	500	2025.8
16:32	121123-1MS	25.00	50.00	37.9	1.0	50	500	3769.4
16:35	121123-1MSD	25.00	50.00	36.7	1.0	50	500	3649.1
16:40	121123-2	25.00	50.00	16.9	1.0	5	50	166.5
16:45	121138-5	25.00	50.00	26.0	1.0	50	500	2577 "B"
16:47	121138-10	25.00	50.00	18.0	1.0	50	500	1775.3 "B"
16:49	121138-15	25.00	50.00	11.3	1.0	50	500	1103.9 "B"
16:55	121138-15MS	25.00	50.00	11.4	1.0	50	500	1114
16:59	121138-15MSD	25.00	50.00	15.7	1.0	50	500	1544.8
17:05	CCV	1.00	1.00	31.9	1.0	1	10	31.7
17:10	CCB	1.00	1.00	0.5	1.0	1	10	ND
17:08	[illegible]							

~~*LIMS dilution factor = prep factor x dilution factor~~

* For OHM (121138) Method Blank 3.2 [J]. 09/12/96

09/12/96

TRPH / Oil and Grease (IR)

17:09	121171-5	25.00	50.00	35.8	1.0	~~5~~ 10	~~50~~ 100	~~355.9~~ 712
17:12	121138-15	25.00	50.00	10.9	1.0	50	500	1063.9
17:15	121138-15MS	25.00	50.00	11.2	1.0	50	500	1093.9
17:18	121138-15MSD	25.00	50.00	16.0	1.0	50	10	1574.9
17:21	CCV	1.00	1.00	32.0	1.0	1	10	31.8
17:30	CCB	1.00	1.00	0.4	1.0	1	10	ND

QUANTERRA
Data Review Checklist
GENERAL CHEMISTRY

TEST: TRPH Method #: 418.1 ANALYSIS DATE: 091196

Project Numbers: 051260 / 121123 / 121138 / 121171

* Due to client requirement QC Lot & QC run Charged to BK. 9/12/96

COMMENTS:

PROJECT NO. 121123-1 MS/MSD RECOVERIES WERE BOTH OUTSIDE THE ACCEPTANCE CRITERIA. SAMPLE WAS REPORTED AT 2026 mg/kg AND MS/MSD RESULTS CAME OUT AT 3769 & 3649 mg/kg RESPECTIVELY WHICH IS ~~GREATER THAN 45X~~ Greater than 4X THE SPIKE AMOUNT OF 40 mg/kg. REPORT AS IT IS. THE VERY HIGH RECOVERIES CAN BE ATTRIBUTED TO MATRIX INTERFERENCE.

FOR SAMPLE # 121138-15 MS/MSD RECOVERIES CAME OUT LOW FOR MS WHICH IS 25% & LC FOR THE MSD. SAMPLES WERE REANALYZE TO CONFIRM THE RESULTS AND BOTH WERE STILL OUT. THIS DIFFERENCE IN % RECOVERIES OBTAINED CAN BE DUE TO THE NON HOMOGENETY OF THE SAMPLE. REPORT AS IS, THE LCS & MB ARE WITHIN THE CONTROL LIMIT.

Pipet Calibration Check

PIPET ID	Volume Setting (ml)	Wt of water (g)	%Error	Acceptance
				2%
				2%
				2%

%Error = (Delivered volume - Stated volume)/Stated volume
Water must be at room temperature

WET CHEM QC SUMMARY

Analysis date: 091196
Parameter: TRPH

Prep: AQUEOUS--No separate prep; use analysis date
SOLID--See attached prep sheet

Project QC Summary

Sample ID	QC Cat	QC LOT	QC RUN	MS RUN	MS Ref
051260 - 8/17		10 SEP 96 AX	10 SEP 96 AX	10 SEP 96 AA	051260 - 17
121123 - 1/2		BX	BX	10 SEP 96 AB	121123 - 1
121138 - 5, 10, 15		AX	AX	10 SEP 96 AC	121138 - 15
121171 - 5		AX	AX	↓	↓

QC Raw Data

QC Batch ID	Amt Spk	Unspiked Sample	MS	MSD (or Dup)	LCS/ DCS1	DCS2	RPD	% Rec 1	% Rec 2	Control Limits
10 SEP 96 AX	40.0			32.9	39.3			98.2	82.3	135-~~165~~
10 SEP 96 AA	40.0	ND	36.1	~~31.4~~		9.3	~~13.9~~	90.2	~~78.5~~	135-65
10 SEP 96 AB	40.0	2026	3769	3649				"NC"	"NC"	
10 SEP 96 AC	40.0	1104	1114	1545				25	NC	
10 SEP 96 BX	40.0				39.3			98.2		

QUANTERRA--SOUTHERN CALIFORNIA

PREP SHEET for: IR

Analytes: TRPH

Prep Date: 9/10/96 18:30

Prep Method: 418.1

Analyst: L. MANALO

SAMPLE ID	CLIENT	MATRIX	Sample Aliquot	Final Volume	COMMENTS
MB					This is a split of the O+G (4132) MB and LCS which has been subsequently treated with silica gel
LCS					
051260-B	LUKE	SOIL	25.0 g	50 mL	
-9	↓	↓	↓	↓	
-12					
-13					
-14					
-16					
-17					
-17 MS					122 uL of IN-96-71
-17 SD	↓				
121123-1	G+M				
-1 MS					122 uL of IN-96-71
-1 SD					
-2	↓				
121138-5	OHM				
-10					
-15					
-15 MS					122uL of IN-96-71
-15 SD					
121171-5	↓	↓	↓	↓	END 19:45

Quanterra--Santa Ana

Wet Chemistry

STANDARDS PREPARATION LOG

ID#:

IN-96- 71

Preparation Date: 8/6/96

Standard Name: TRPH/O&G Cal. Std

Expiration Date: 2/6/97

Matrix: FREON

Analyst: JBB

Cont. 3x40ml VOA

Parameter	Reagent Name	Supplier/Lot# or Inventory #	Expiration Date	Initial Conc.	Preparation	Final Volume	Final Conc.
TRPH/O&G	Calibration Standard	IN-96-35	on inspection	see IN-96-35	0.8196g → 100ml Freon	100ml	8196 ppm

Comments:

Reviewed/Computer Entry:

Disposal Date:

Quanterra--Santa Ana

Wet Chemistry

STANDARDS PREPARATION LOG

ID#:

IN-96- 43

Preparation Date: 050996 Standard Name: ICV STOCK

Expiration Date: 110996 Matrix: FREON

Analyst: LM Container: 4 x 50 amber VOA

Parameter	Reagent Name	Supplier/Lot# or Inventory #	Expiration Date	Initial Conc.	Preparation	Final Volume	Final Conc.
TRPH (418.1)	418.1 mix	CAT. # 30080 RESTEK CORP. LOT # A00579	3-99		0.8530 gms	100 mL	8530 ppm

No.011
WT +0.8530 g

Comments:

Reviewed/Computer Entry:

Disposal Date:

Quanterra--Santa Ana

Wet Chemistry

STANDARDS PREPARATION LOG

ID#:

IN-96- 35

Preparation Date: 4/16/96

Standard Name: OIL REFERENCE

Expiration Date: 10/16/96

Matrix: FF

Analyst:

Container: 40 ml VOA

Parameter	Reagent Name	Supplier/Lot# or Inventory #	Expiration Date	Initial Conc.	Preparation	Final Volume	Final Conc
TRPH + O&G CALSTD	REFERENCE OIL	BAKER LOT H60262I		25%	10 ml Chlorobenzene	40 ml	25
		ALDRICH CAT# H690-3 LOT 03338 EF		37.5%	15 ml Hexadecane		37.5
		B AND J LOT# A5202		37.5%	15 ml Isooctane		37.5

Comments:

Reviewed/Computer Entry:

Disposal Date:

Project number: 121123

QA/QC REPORT (Continued)

II. MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD)

DATE PERFORMED: 11 SEP 96 ANALYTICAL METHOD: 418.1
BATCH #: 10-SEP-96-AB
LAB SAMPLE ID: 121123-0001-SA UNIT: mg/kg

ANALYTE	SAMPLE RESULT	SPIKE CONC	MS	%MS	SPIKE CONC (DUP)	MSD	%MSD	RPD	MS/MSD LIMIT	RPD LIMIT
TPH, Recoverable	2030	40.0	3770	NC	40.0	3650	NC	NC	75-125	25

Project number: 121123

QA/QC REPORT (Continued)

III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

DATE PERFORMED: 11 SEP 96
SUPPLY SOURCE: RESTEK
LOT NUMBER: A005179
DATE OF SOURCE: 05/09/96

ANALYTICAL METHOD: 418.1
LAB LCS I.D.: 10 SEP 96-BX 10 SEP 96-BX

UNIT: mg/kg

ANALYTE	SPIKE CONC	RESULT	%RECOVERY	ACP %REC LIMIT
TPH, Recoverable	40.0	39.3	98	75-125

APPENDIX B

SOIL GAS SAMPLE ANALYTICAL RESULTS
AND QUALITY CONTROL/QUALITY ASSURANCE RESULTS

SOIL GAS SURVEY REPORT

HAWKER PACIFIC SITE
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA

Prepared for:

Geraghty & Miller, Inc.,
3700 State Street, Suite 350
Santa Barbara, California 93105-3128

Prepared by:

Environmental Support Technologies, Inc.
23011 Moulton Parkway
Suite E-6
Laguna Hills, California 92653

Project No. EST1394

September 12, 1996

LIMITATIONS AND WARRANTIES

This Soil Gas Survey Report has been prepared for the exclusive use of Geraghty & Miller, Inc., and assigned interested parties. The report has been prepared in accordance with generally accepted environmental assessment practices. No other warranty, expressed or implied, is made.

The information provided in this report is based on measurements performed in specific areas during a specific limited period of time. In the event that any changes occur in waste management practices, site conditions, or uses of the property, the information contained in this report should be reviewed and modified or verified in writing by Environmental Support Technologies, Inc. (EST).

Soil gas sample analyses are conducted using laboratory-grade gas chromatography equipment. Chemical compound identification is performed using quantitative methods. Chemical compound identities should be verified using gas chromatography/ mass spectrometric analyses methods. Soil gas survey data should be used in conjunction with other site-specific data.

There is no investigation which is thorough enough to absolutely exclude the presence of hazardous material at the project site. Therefore, if none are identified as part of a limited investigation, such a conclusion should not be construed as a guaranteed absence of such materials, but merely the results of an investigation. EST, despite the use of reasonable care and a commitment to professional excellence, may not identify the presence of hazardous materials and hazardous compound concentrations in soil, soil gas, and/or groundwater. EST assumes no responsibility for conditions not investigated or for conditions not generally recognized as environmentally unacceptable, at the time of the investigation.

Kirk A. Thomson

Kirk A. Thomson, R.G., R.E.A., C.HG.
Project Manager/Principal Hydrogeologist

1.0 INTRODUCTION

On September 6, 1996, Environmental Support Technologies, Inc. (EST), at the request of Geraghty & Miller, Inc. (G&M), performed a soil gas survey at the Hawker Pacific site located at 11310 Sherman Way in Sun Valley, California. The soil gas survey included the installation and sampling of one (1) 10-foot soil gas sampling probes and one (1) 20-foot soil gas sampling probes. Soil gas samples were analyzed on-site for volatile organic compounds including halogenated and aromatic hydrocarbons. This soil gas survey report was prepared based on soil gas analyses data collected during the survey.

2.0 OBJECTIVES OF THE SOIL GAS SURVEY

The objectives of the soil gas survey were to:

- Aid in identifying potential vadose zone source areas of VOCs including halogenated and aromatic hydrocarbons.
- Assess the limited vertical extent of VOCs in surficial soils.

Soil gas sampling is a monitoring technique for the presence of VOCs in soil and should be used in conjunction with other site-specific data. Soil gas sampling is limited in its applications depending on site conditions. Some factors affecting the distribution of VOCs in the subsurface are listed in Appendix A.

3.0 RATIONALE FOR THE LOCATIONS OF SAMPLING SITES

The approximate locations of soil gas probes installed at the Hawker Pacific site are shown in Figure 1. The locations and depths of the 10-foot and 20-foot soil gas probes were selected and cleared of underground utilities by G&M field representatives.

4.0 METHODS AND PROCEDURES

Field methods and procedures used to perform the multi-depth soil gas survey are described in this section.

4.1 SOIL GAS PROBE INSTALLATION AND COMPLETION

Construction of a typical soil gas sampling probe is shown in Figure 2. Soil gas probes were installed using either a percussion-hammer or hydraulic-ram. Once a probe was installed to the desired depth, the hollow probe drive-rod was withdrawn, leaving the stainless steel probe point and Nylaflow™ sampling tube in the subsurface. Silica sand was poured around the probe tip to allow for diffusion of soil vapors. The remaining annulus was filled with hydrated bentonite/cement slurry to grade. The probe point and sampling tube assembly were left in place (dedicated) as a long-term soil gas monitoring point. The sampling tube was plugged with a stainless-steel machine-screw, folded over, and pushed down-hole until slightly below grade. The remaining depression was filled with concrete patch material and finished flush with surrounding paving material.

4.2 SOIL GAS SAMPLE COLLECTION AND HANDLING

Soil gas samples were collected using the soil gas sampling system shown in Figure 3. The soil gas sampling system was constructed of Teflon™, Nylaflow™ stainless-steel, and glass components. Instrumentation associated with the sampling system included a calibrated flow-meter and vacuum gage. Vacuum integrity of the sampling system was tested prior to, and after the soil gas survey using leak-down testing methods. The soil gas sampling system and instrumentation were operating as required on both occasions. Soil gas sampling probes were purged at a flow of approximately 100 milliliters per minute (ml/min).

A site-specific probe purge volume versus sample concentration test was initially performed to evaluate the appropriate volume of gas to be purged from each probe prior to sample collection. Time-series sampling of at least one probe was conducted to evaluate trends in soil gas concentrations as a function of purge volume. After purging, soil gas samples were withdrawn from the sample stream using a glass syringe fitted with a disposable needle and Mininert™ gas-tight valve. Soil gas samples were immediately injected into a gas chromatograph (GC) after collection.

4.3 SOIL GAS SAMPLE ANALYSES (HALOGENATED AND AROMATIC HYDROCARBONS)

Soil gas samples were analyzed in the field using a mobile laboratory equipped with a Varian-3400 GC configured with a photo-ionization detector (PID) and an electrolytic conductivity detector (ELCD) placed in series. The GC-PID/ELCD was used to analyze soil gas samples using a method similar to EPA Method 8021. The detection limits was one microgram per liter (µg/L) for 8021 compound analyses.

4.4 SURROGATE COMPOUNDS

One early eluting and one middle eluting surrogate compound was added to all analyzed samples. Surrogate compound concentrations were within the initial calibration range. The percent recovery of the surrogate compounds were calculated and reported with soil gas sample analyses results. The acceptance goal for surrogate compound recovery is ±25 percent difference from the true concentration of the surrogate compounds. Surrogate compounds added to each sample analyses run included bromochloromethane (ELCD) and chlorobenzene (PID and ELCD), each at a true concentration of 5,000 µg/L.

4.7 INITIAL MULTI-POINT EQUIPMENT CALIBRATION

A summary of the Quality Assurance/Quality Control (QA/QC) analyses is presented in Table 1. The GC-PID/ELCD used for soil gas analyses was calibrated using high-purity solvent-based standards obtained from certified vendors. GC-PID/ELCD calibration standards were prepared in high-purity methanol solvent. GC-PID/ELCD calibration using solvent-based standards was performed using varying injection volumes of the undiluted solvent-based standard. If necessary, stock solvent-based standards were diluted to an appropriate concentration. Diluted standards were prepared by introducing a known volume of stock solvent-based standard into a known volume of high-purity solvent.

Initial calibration was performed for 25 target compounds. The GC-PID/ELCD was calibrated using three standard injections to establish a three-point calibration curve. The lowest standard was not higher than five times the method detection limit (or 5 µg/L). The percent relative standard deviation (%RSD) of the response factor (RF) for each target compound did not exceed 20 percent except for trichlorofluoromethane (Freon™-11), dichlorodifluoromethane (Freon™-12), 1,1,2-trichloro-trifluoroethane (Freon™-113), chloroethane (CE), and vinyl chloride (VC), which did not exceed 30 %RSD. Identification and quantitation of compounds in the field was based on calibration under the same analytical conditions as for three-point calibration.

4.8 LABORATORY CONTROL SAMPLE

A laboratory control sample (LCS) from a different source or lot number other than the initial calibration standard was used to verify the true concentration of the initial calibration standard. The LCS included 25 target compounds. The RF for each compound in the LCS (except for Freons™-11, -12, and -113, CE, and VC) did not exceed 15 percent difference from the Average Response Factor (ARF) established from the initial calibration. The RF for Freons™-11, -12, and -113, CE, and VC did not exceed 25 percent of the initial calibration.

4.9 DAILY MID-POINT CALIBRATION CHECK

Daily field calibration of the GC-PID/ELCD consisted of a mid-point calibration using a standard containing 14 target compounds. The daily mid-point calibration check included the 12 target compounds specified in Los Angeles Regional Water Quality Control Board (LARWQCB) requirements dated March 1996. The RF of each compound (except for Freons™-11, -12, and -113, CE, and VC) was within 15 percent of the average RF from the initial calibration. The RF for Freons™-11, -12, and -113, CE, and VC were within 25 percent of the initial calibration. If these criteria were not met, the GC-PID/ELCD was recalibrated. Daily calibration was performed prior to the first soil gas sample analysis of the day. One-point calibration was performed for all compounds detected at the site to ensure accurate quantitation. Subsequent calibration episodes, if deemed necessary, consisted of at least one injection of the standard exhibiting a similar detector response as that of samples encountered in the field.

4.10 BLANK INJECTIONS

The syringes used for soil gas sample collection were periodically filled with ambient air or high-purity carrier-grade gas from a compressed gas cylinder. The ambient air or high-purity gas was injected directly into the gas chromatograph. The blank injections served to detect potential cross-contamination of the sampling equipment and to verify the effectiveness of decontamination procedures.

4.11 END OF DAY GC TEST RUN

A LCS was analyzed at the end of each field day. The LCS contained the same compounds as the daily mid-point calibration standard (minimum of 12 compounds). The LCS was procured from a source other than the initial multi-point calibration standard. The RF for each LCS compound (except for Freons™-11, -12, and -113, CE, and VC) was within 20 percent of the average RF for the initial calibration. The RF for Freons™-11, -12, and -113, CE, and VC was within 30 percent of the average RF. If these criteria were not met, additional LCSs were analyzed.

4.12 DECONTAMINATION

Probe installation and sampling equipment in contact with site soil or soil gas sample streams were decontaminated prior to collection of each soil gas sample. Decontamination of probe installation equipment was performed by immersion and scrubbing in Alconox™ detergent solution, rinsing in tap-water, rinsing in VOC-free water, followed by air drying. Decontamination of soil gas sampling equipment was performed by baking at elevated temperatures (< 160 degrees Celsius) inside the GC oven.

5.0 SOIL GAS SURVEY RESULTS

A concentration of 102 µg/L of Tetrachloroethene (PCE) was detected in soil gas collected from Probe SG1-10. Detected concentrations of PCE are shown in Figure 4. Halogenated and aromatic hydrocarbons were not detected above quantitation limits in other soil gas samples collected at the Hawker Pacific site. A summary of field analyses results is provided in Table 2. Field analyses reports, GC-PID/ELCD calibration data, and method detection limits for halogenated and aromatic hydrocarbons are provided in Appendix B.

TABLES

TABLE 1

SUMMARY OF
QUALITY ASSURANCE/QUALITY CONTROL ANALYSES
FOR SOIL GAS SURVEYS

CALIBRATION AND LABORATORY CONTROL SAMPLES

DESCRIPTION	FREQUENCY	PRECISION GOAL %RSD or %DIFF
INITIAL THREE-POINT CALIBRATION (25 Target Compounds)	At the beginning of the soil gas survey, unless the RPDs of the initial laboratory check sample or daily mid-point calibration check samples exceed their goals.	20-30 (1)
INITIAL LABORATORY CONTROL SAMPLE (LCS) (25 Target Compounds)	At the beginning of the survey, following the initial three-point calibration.	15 (2)
DAILY MID-POINT CALIBRATION CHECK (12 Target Compounds)	At the beginning of each day.	15 (3) 25 (3)
LAST GC TEST RUN (12 Target Compounds)	At the end of each day.	20 (4)

FIELD CONTROL SAMPLES

DESCRIPTION	FREQUENCY	PRECISION GOAL
BACKGROUND SAMPLE (5)	Minimum one per day.	N/A
SYRINGE BLANK (5)	Minimum one per day.	N/A

%RSD = Percent Relative Standard Deviation calculated based on the initial three-point calibration.

%DIFF = Percent Difference between the response factor obtained from the LCS, the daily mid-point calibration, or the last GC test run and the average response factor initially calculated based on the three-point calibration.

N/A = Not applicable.

(1) The %RSD goal for the initial three-point calibration will be 20 percent for all compounds except for Freon 11, Freon 12, Freon 113, chloroethane, and vinyl chloride for which the %RSD goal is 30 percent.

(2) The %DIFF goal for the LCS will be 15 percent for all target compounds.

(3) The %DIFF goal for the daily mid-point calibration check will be 15 percent for all compounds except for Freon 11, Freon 12, Freon 113, chloroethane, and vinyl chloride for which the %DIFF goal is 25 percent.

(4) The %DIFF goal for the last GC test run will be 20 percent for all compounds except for Freon 11, Freon 12, Freon 113, chloroethane, and vinyl chloride for which the %DIFF goal is 30 percent.

(5) A syringe/background sample will be analyzed using ambient air. If volatile organic compounds (VOCs) are not detected, the ambient air sample will represent the background sample and syringe blank. If VOCs are detected in the ambient air sample, a syringe blank will be analyzed using ultra-high-purity helium or nitrogen gas.

TABLE 2

SUMMARY OF FIELD ANALYSES RESULTS
SOIL GAS SURVEY

HAWKER PACIFIC SITE
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA

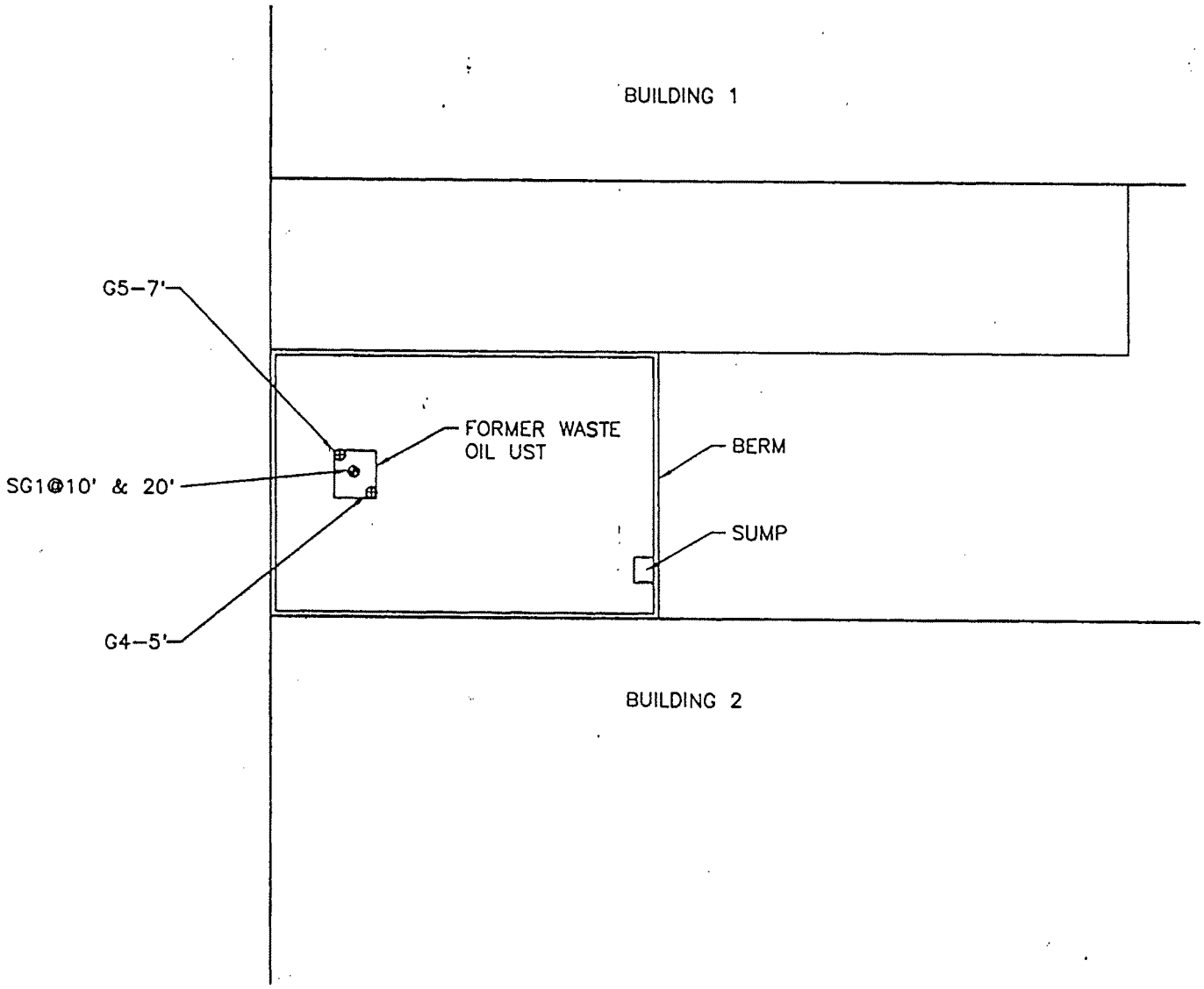
9/5/1996 File: 1394T2.WK3

PROBE NUMBER	DATE OF SAMPLING	PROBE DEPTH (ft)	SAMPLING EVENTS	PCE (ug/L)
SG1-10	9/6/96	10	4	102
SG1-20	9/6/96	20	2	ND<1

ft = feet below grade
ug/L = micrograms per liter
PCE = Tetrachloroethene

Note: Values shown are the highest detected within calibration range.

FIGURES



EXPLANATION

⊕ SG1	APPROXIMATE LOCATION OF A SOIL GAS SAMPLING PROBE WITH ASSOCIATED PROBE NUMBER AND PROBE DEPTH
⊕ G5–7'	APPROXIMATE LOCATION OF A SOIL BORING WITH ASSOCIATED BORING NUMBER AND BORING DEPTH

N

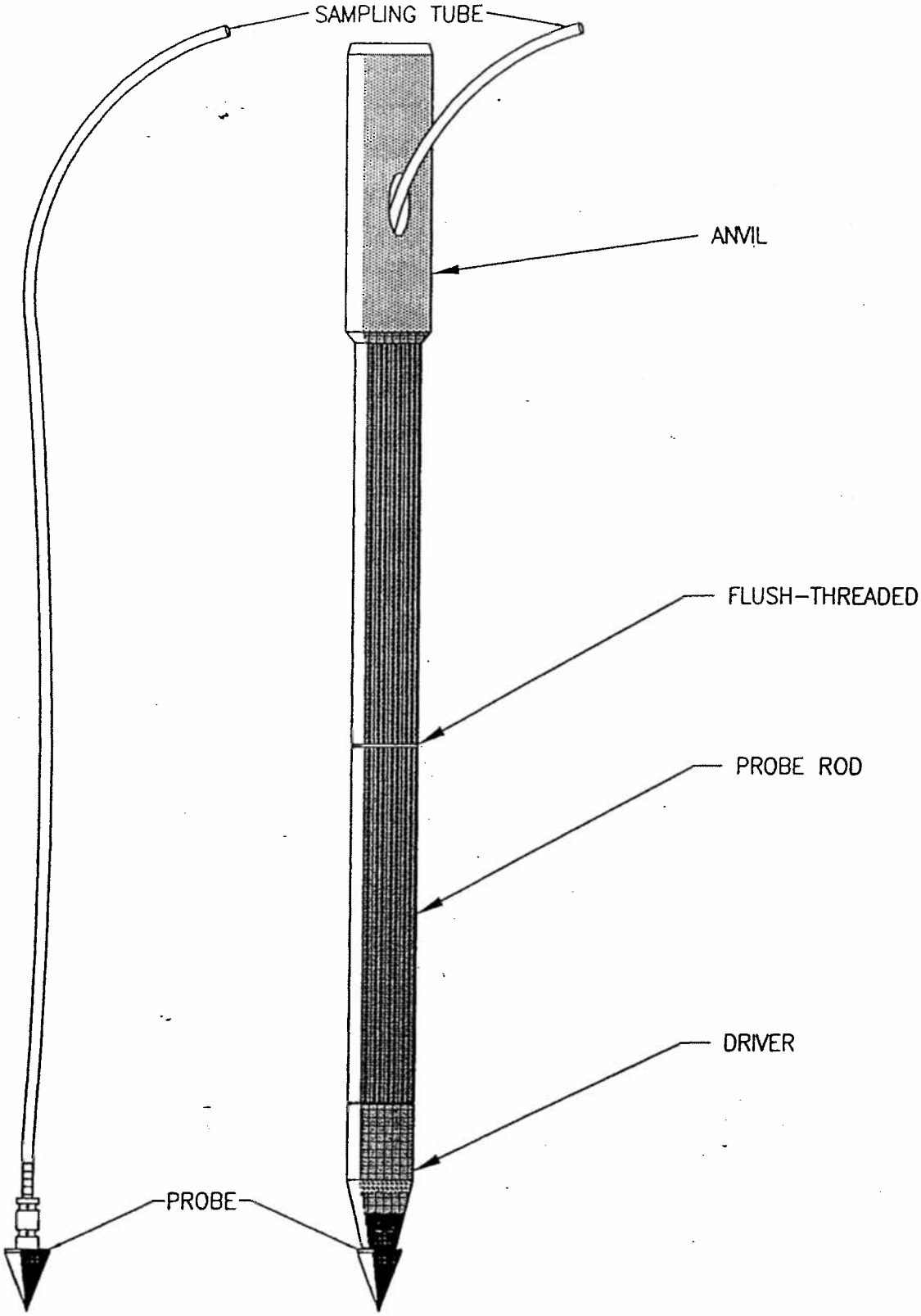
FIGURE 1

APPROXIMATE LOCATIONS OF SOIL GAS SAMPLING PROBES

HAWKER PACIFIC, INC.
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA
EST1394 / SITE ASSESSMENT

DRAWN BY: JST SCALE: AS SHOWN DATE: 9-10-1996

EST1394.DWG SOURCE OF BASE MAP: GERAGHTY & MILLER, INC.

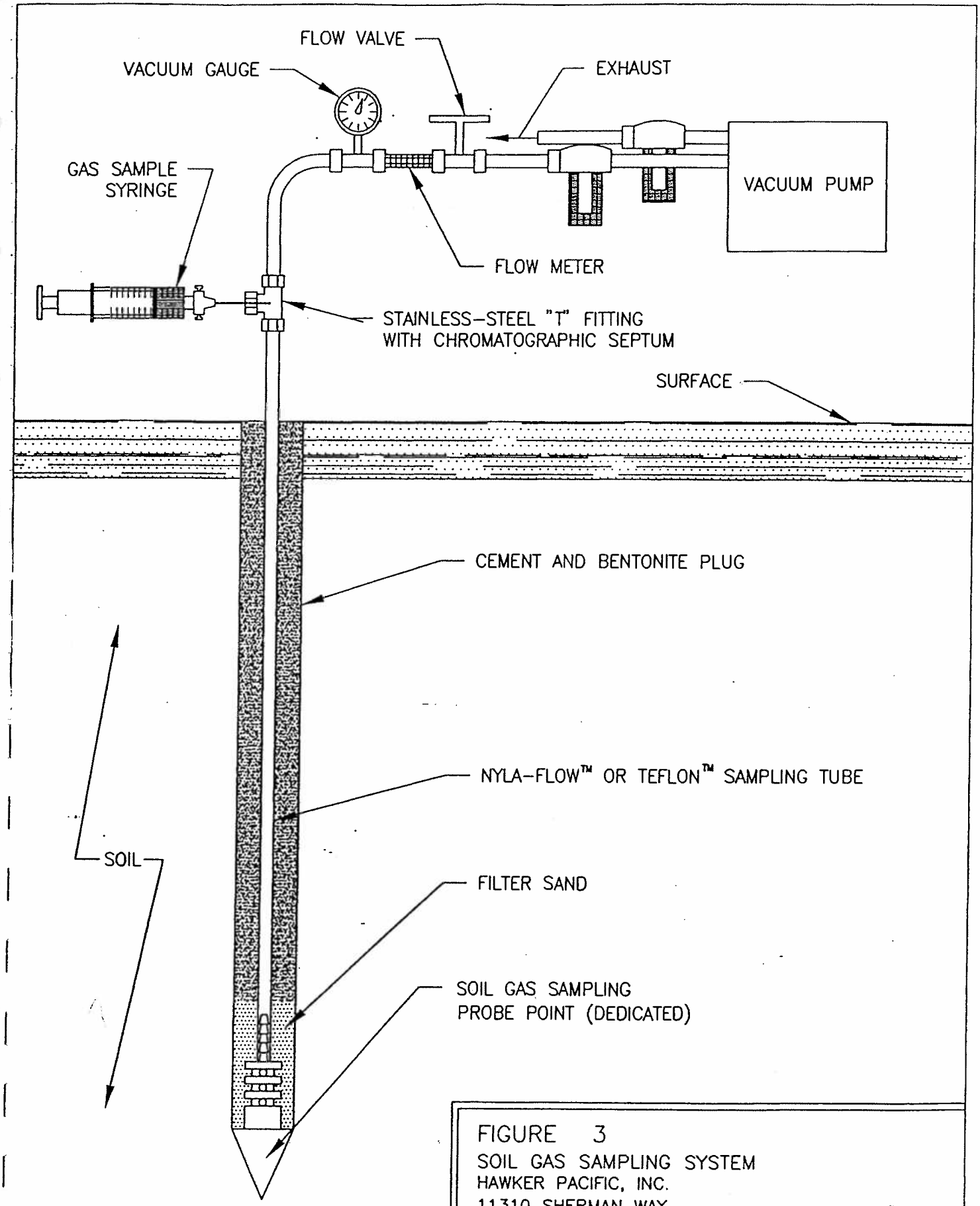


DEDICATED PORTION OF PROBE

NOTE: NOT TO SCALE

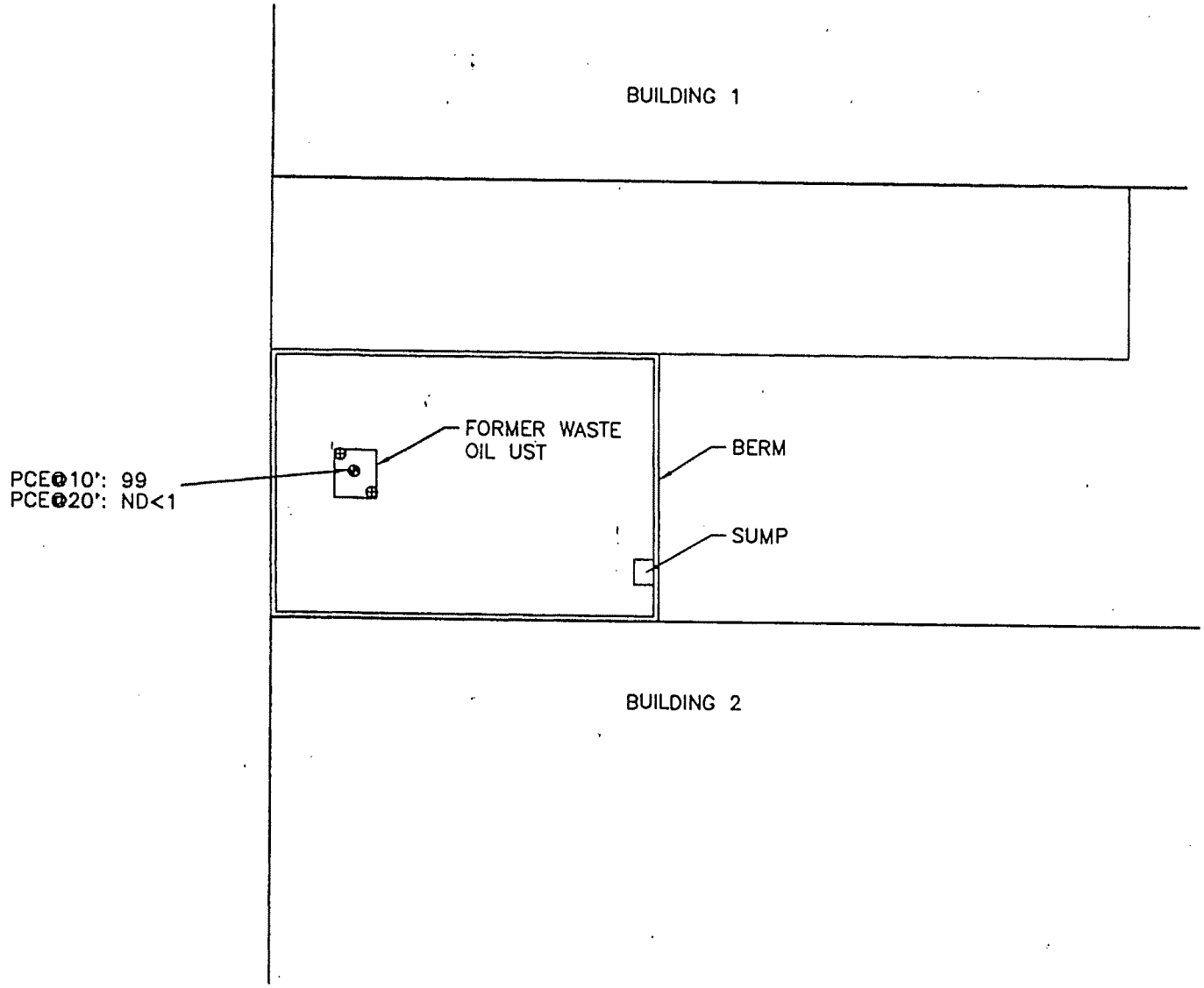
FIGURE 2
SOIL GAS SAMPLING PROBE
HAWKER PACIFIC, INC.
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA
EST1394 / SITE ASSESSMENT
DRAWN BY: JST NOT TO SCALE DATE: 9-10-1996

ESTSGPRO.DWG



NOTE: NOT TO SCALE

FIGURE 3
SOIL GAS SAMPLING SYSTEM
HAWKER PACIFIC, INC.
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA
EST1394 / SITE ASSESSMENT
DRAWN BY: JST NOT TO SCALE DATE: 9-10-1996



EXPLANATION

PCE@10': 99 PCE@20': ND<1	APPROXIMATE LOCATION OF A SOIL GAS SAMPLING PROBE WITH ASSOCIATED PROBE DEPTH AND DETECTED CONCENTRATIONS OF TETRACHLOROETHENE (PCE) (μ g/L)
ND	= NOT DETECTED; SAMPLE IS BELOW THE REPORTED DETECTION LIMIT

FIGURE 4

DETECTED CONCENTRATIONS OF TETRACHLOROETHENE

HAWKER PACIFIC, INC.
11310 SHERMAN WAY
SUN VALLEY, CALIFORNIA
EST1394 / SITE ASSESSMENT

DRAWN BY: JST SCALE: AS SHOWN DATE: 9-10-1996

EST1394.DWG SOURCE OF BASE MAP: GERAGHTY & MILLER, INC.

APPENDICES

Appendix A

FACTORS AFFECTING THE GAS-PHASE DISTRIBUTION OF VOCs IN THE SUBSURFACE

Soil and groundwater contamination by volatile organic compounds (VOCs) can often be detected by analyzing trace gases in soil just below ground surface. This technique is possible because many VOCs will volatilize and move by molecular diffusion away from source areas toward regions of lower concentrations. A gas phase concentration gradient from the source to adjacent areas is established.

The following factors affect the transport and gas phase distribution of VOCs in the subsurface.

1. The liquid-gas partitioning coefficient of the compounds of interest (the "volatility" of the compound).

2. The vapor diffusivity, which is a measure of how quickly an individual compound "spreads out" within a volume of gas.

3. Retardation of the individual compounds as they migrate in the soil gas. Retardation may be due to degradation, adsorption on the soil matrix, tortuosity of the soil profile, or entrapment in unconnected pores.

4. The presence of impeding layers, wetting fronts of freshwater, or perched water tables, between the regional water table and ground surface.

5. The presence of soil moisture around man-made structures such as clarifiers and sumps may suppress volatilization and diffusion of VOCs resulting in false negative or low soil gas concentrations.

6. The presence of contaminants from localized spills or in the ambient air.

7. Movement of soil gas in response to barometric pressure changes.

8. The preferential migration of gas through zones of greater permeability (e.g. natural lithologic variation or back-fill of underground utilities).

9. Soil temperature.

At most sites, many of these factors are unknown or poorly understood. Because of this uncertainty, soil gas sampling should be used in conjunction with other site-specific data.

Appendix B

FIELD ANALYSES RESULTS FOR HALOGENATED AND AROMATIC HYDROCARBONS

(INCLUDING CALIBRATION REPORTS, QUALITY CONTROL REPORTS, AND EXPLANATION OF METHOD DETECTION LIMITS)

TABLE B-1
HALOGENATED AND AROMATIC HYDROCARBONS
FIELD ANALYSES RESULTS FOR SOIL GAS SAMPLES
PACIFIC HAWKINS SAN FERNANADO BOULEVARD, SUN VALLEY, CALIFORNIA
25-TARGET COMPOUND LIST

PID/ELCD #1 - 9/6/96
FILE: 394ASGRP.WK3

SAMPLE ID			SG1-10	SG1-10	SG1-10	SG1-10	SG1-20	SG1-20	NA	NA
DATE			9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	NA	NA
TIME			10:41	10:58	11:14	11:29	11:54	12:08	NA	NA
INJECTION VOLUME (ul)			500	500	500	100	500	500	NA	NA
PURGE VOLUME (ml)			150	300	450	450	600	600	NA	NA
VACUUM (in. Hg)			ND	ND	ND	ND	ND	ND	NA	NA
DILUTION FACTOR			1.0	1.0	1.0	5.0	1.0	1.0	NA	NA
COMMENTS	RT	ARF								
Dichlorodifluoromethane	2:81	1.55E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Vinyl chloride	3:10	5.68E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Chloroethane	3:39	2.46E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Trichlorofluoromethane	3:57	5.78E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1,2-Trichloro-trifluoroethane	4:10	1.09E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1-Dichloroethene	4:09	4.37E+07	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Methylene chloride	4:77	1.04E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
trans-1,2-Dichloroethene	5:04	9.43E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1-Dichloroethane	5:56	9.24E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
cis-1,2-Dichloroethene	6:22	9.80E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Bromochloromethane (Surrogate)	6:39	6.59E+08	2.78E+06 84%	2.74E+06 83%	3.00E+06 91%	2.62E+06 80%	2.41E+06 73%	3.06E+06 93%	0.00E+00 ND	0.00E+00 ND
Chloroform	6:59	1.34E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1,1-Trichloroethane	6:80	1.13E+09	0.00E+00 ND	5.73E+04 ND<1	6.34E+04 ND<1	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Carbon tetrachloride	7:00	1.44E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Benzene	7:23	9.88E+07	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,2-Dichloroethane	7:29	1.09E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Trichloroethene	8:03	1.13E+09	0.00E+00 ND	1.68E+05 ND<1	1.84E+05 ND<1	2.78E+04 ND<1	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Toluene	9:73	9.19E+07	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1,2-Trichlorethane	10:34	9.89E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Tetrachloroethene	10:53	1.28E+09	0.00E+00 ND<1	2.99E+07 47 *	2.80E+07 44 *	1.30E+07 102	0.00E+00 ND<1	2.08E+05 ND<1	0.00E+00 ND	0.00E+00 ND
Chlorobenzene (Surrogate)	11:75	9.18E+07	4.66E+05 102%	4.24E+05 92%	4.87E+05 102%	4.07E+05 89%	3.92E+05 85%	4.73E+05 103%	0.00E+00 ND	0.00E+00 ND
1,1,1,2-Tetrachloroethane	11:91	1.21E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
Ethylbenzene	11:89	8.69E+07	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
meta and para-Xylene	12:06	2.07E+08	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
ortho-Xylene	12:67	7.86E+07	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND
1,1,2,2-Tetrachloroethane	13:69	1.08E+09	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND	0.00E+00 ND

ND = not detected; analyte is below the reportable limit of quantitation for this sample
RT = retention time
ul = microliter
in. Hg = inches of mercury

Concentrations reported in micrograms per liter (ug/L)
ARF = average response factor
ml = milliliter
* = exceeds calibration range

9/6/96

ANALYST : David M. Pride

REVIEWED BY : Ragi Abraham RA

TABLE B–2

QUALITY ASSURANCE/QUALITY CONTROL REPORT
SUBJECT SITE, CALIFORNIA

PID/ELCD #1
FILE: 394AQAQC

TARGET COMPOUNDS		SEPTEMBER 5, 1996								SEPTEMBER 6, 1996				
		THREE–POINT CALIBRATION					LCS			MID–POINT			LAST RUN	
STANDARD CONC. (ug/L)		5000	5000	5000			5000		BLANK	5000		BLANK	5000	
INJECTION VOLUME(uL)		0.50	1.00	2.00			1.00		500	1.00		500	1.00	
COMPOUND/WEIGHT(ug)	RT	0.0025	0.0050	0.0100	ARF	%RSD	0.0050	RPD		0.0050	RPD		0.0050	RPD
ichlorodifluoromethane	2:81	449098	725916	1401065			745336		0.00E+00	0		0.00E+00	0	
CF		1.80E+08	1.45E+08	1.40E+08	1.55E+08	14	1.49E+08	−4	ND	0.00E+00	NA	ND	0.00E+00	NA
l chloride	3:10	1791685	2586293	4714575			3140334		0.00E+00	0		0.00E+00	0	
CF		7.17E+08	5.17E+08	4.71E+08	5.68E+08	23	6.28E+08	10	ND	0.00E+00	NA	ND	0.00E+00	NA
hloroethane	3:39	671143	1201966	2278905			1151185		0.00E+00	0		0.00E+00	0	
CF		2.68E+08	2.40E+08	2.28E+08	2.46E+08	8	2.30E+08	−6	ND	0.00E+00	NA	ND	0.00E+00	NA
hlorofluoromethane	3:57	1509413	2971597	5371520			2522384		0.00E+00	0		0.00E+00	0	
CF		6.04E+08	5.94E+08	5.37E+08	5.78E+08	6	5.04E+08	−13	ND	0.00E+00	NA	ND	0.00E+00	NA
2–Trichloro–trifluoroethane	4:10	3026084	4881708	10925229			6056061		0.00E+00	0		0.00E+00	0	
CF		1.21E+09	9.76E+08	1.09E+09	1.09E+09	11	1.21E+09	11	ND	0.00E+00	NA	ND	0.00E+00	NA
1–Dichloroethene (PID)	4:09	114793	190816	470594			191843		0.00E+00	202204		0.00E+00	0	
CF		4.59E+07	3.82E+07	4.71E+07	4.37E+07	11	3.84E+07	−12	ND	4.04E+07	−7	ND	0.00E+00	NA
ylene chloride	4:77	2280714	5661008	10785609			4362995		0.00E+00	0		0.00E+00	0	
CF		9.12E+08	1.13E+09	1.08E+09	1.04E+09	11	8.73E+08	−16	ND	0.00E+00	NA	ND	0.00E+00	NA
ns–1,2–Dichloroethene	5:04	2043260	4599544	10905869			4053012		0.00E+00	4483987		0.00E+00	0	
CF		8.17E+08	9.20E+08	1.09E+09	9.43E+08	15	8.11E+08	−14	ND	8.97E+08	−5	ND	0.00E+00	NA
Dichloroethane	5:56	1997216	5092079	9546662			4067983		0.00E+00	4007041		0.00E+00	0	
CF		7.99E+08	1.02E+09	9.55E+08	9.24E+08	12	8.14E+08	−12	ND	8.01E+08	−13	ND	0.00E+00	NA
s–1,2–Dichloroethene	6:22	2215392	5239512	10047571			4392234		0.00E+00	4752735		0.00E+00	0	
CF		8.86E+08	1.05E+09	1.00E+09	9.80E+08	9	8.78E+08	−10	ND	9.51E+08	−3	ND	0.00E+00	NA
nochloromethane (Surrogate)	6:39	1564088	3346531	6822053			3069910		0.00E+00	0		0.00E+00	0	
CF		6.26E+08	6.69E+08	6.82E+08	6.59E+08	4	6.14E+08	−7	ND	0.00E+00	NA	ND	0.00E+00	NA
loroform	6:59	3061344	7447138	13015608			5854201		0.00E+00	0		0.00E+00	0	
CF		1.22E+09	1.49E+09	1.30E+09	1.34E+09	10	1.17E+09	−13	ND	0.00E+00	NA	ND	0.00E+00	NA
1–Trichloroethane	6:80	2478658	6120728	11617056			4805205		0.00E+00	4926541		0.00E+00	0	
CF		9.91E+08	1.22E+09	1.16E+09	1.13E+09	11	9.61E+08	−15	ND	9.85E+08	−12	ND	0.00E+00	NA
on tetrachloride	7:00	3235910	8116828	13942628			6788073		0.00E+00	0		0.00E+00	0	
CF		1.29E+09	1.62E+09	1.39E+09	1.44E+09	12	1.36E+09	−6	ND	0.00E+00	NA	ND	0.00E+00	NA
nzene (PID)	7:23	209960	564727	994734			461913		0.00E+00	495583		0.00E+00	0	
CF		8.40E+07	1.13E+08	9.95E+07	9.88E+07	15	9.24E+07	−6	ND	9.91E+07	0	ND	0.00E+00	NA
Dichloroethane	7:29	2538853	5878608	10706607			5159340		0.00E+00	5828676		0.00E+00	0	
CF		1.02E+09	1.18E+09	1.07E+09	1.09E+09	7	1.03E+09	−5	ND	1.17E+09	7	ND	0.00E+00	NA
ichloroethene	8:03	2622502	6138566	11248673			6275171		0.00E+00	5328381		0.00E+00	0	
CF		1.05E+09	1.23E+09	1.12E+09	1.13E+09	8	1.26E+09	11	ND	1.07E+09	−6	ND	0.00E+00	NA
ene (PID)	9:73	197408	523858	919936			423797		0.00E+00	463714		0.00E+00	0	
CF		7.90E+07	1.05E+08	9.20E+07	9.19E+07	14	8.48E+07	−8	ND	9.27E+07	1	ND	0.00E+00	NA
1,2–Trichloroethane	10:34	2259474	5485258	9659356			4263112		0.00E+00	5060684		0.00E+00	0	
CF		9.04E+08	1.10E+09	9.66E+08	9.69E+08	10	8.53E+08	−14	ND	1.01E+09	2	ND	0.00E+00	NA
ichloroethene	10:53	2929187	7043404	12471136			6507418		0.00E+00	5852382		0.00E+00	0	
CF		1.17E+09	1.41E+09	1.25E+09	1.28E+09	9	1.30E+09	2	ND	1.17E+09	−8	ND	0.00E+00	NA
lorobenzene (Surrogate–PID)	11:75	204324	488436	958412			414995		0.00E+00	0		0.00E+00	0	
CF		8.17E+07	9.77E+07	9.58E+07	9.18E+07	10	8.30E+07	−10	ND	0.00E+00	NA	ND	0.00E+00	NA
1,2–Tetrachloroethane	11:91	2780958	6723768	11807799			5330711		0.00E+00	0		0.00E+00	0	
CF		1.11E+09	1.34E+09	1.18E+09	1.21E+09	10	1.07E+09	−12	ND	0.00E+00	NA	ND	0.00E+00	NA
benzene (PID)	11:89	187376	489096	878865			409432		0.00E+00	0		0.00E+00	0	
CF		7.50E+07	9.78E+07	8.79E+07	8.69E+07	13	8.19E+07	−6	ND	0.00E+00	NA	ND	0.00E+00	NA
p–Xylene (PID)	12:06	452378	1166531	2077403			950735		0.00E+00	989565		0.00E+00	0	
CF		1.81E+08	2.33E+08	2.08E+08	2.07E+08	13	1.90E+08	−8	ND	1.98E+08	−5	ND	0.00E+00	NA
ylene (PID)	12:67	169628	441932	801354			370525		0.00E+00	395328		0.00E+00	0	
CF		6.79E+07	8.84E+07	8.01E+07	7.88E+07	13	7.41E+07	−6	ND	7.91E+07	0	ND	0.00E+00	NA
2,2–Tetrachloroethane	13:69	2491995	5608153	11139744			5667487		0.00E+00	0		0.00E+00	0	
CF		9.97E+08	1.12E+09	1.11E+09	1.08E+09	6	1.13E+09	5	ND	0.00E+00	NA	ND	0.00E+00	NA

RT = Retention Time
CF = Calibration Factor
ug/L = Micrograms per Liter
ARF = Average Response Factor
RPD = Relative Percent Deviation
LCS = Laboratory Control Sample
ND = Not Detected
NA = Not Applicable

Analyst: David M. Pride

Reviewed by: Ragi Abraham

Table B-3
Environmental Support Technologies, Inc.
Detection Limits for Soil Gas Surveys

Detection Limits or Reportable Limits of Quantitation for Halogenated and Aromatic Hydrocarbons are 1 ug/L when the injection volume is 500 uL. For lesser injection volumes detection limits are listed below.

Injection Volume (uL)	Detection Limit (ug/L)
500	1.0
250	2.0
200	2.5
100	5.0
80	6.3
60	8.3
50	10.0
40	12.5
20	25.0
10	50.0
5	100.0
1	500.0

APPENDIX C

WORK PLAN, WORK PLAN RELATED CORRESPONDENCE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
FAX: (213) 266-7600

June 14, 1996

David L. Lokken
President & Chief Executive Officer
HAWKER PACIFIC INCORPORATED
11310 Sherman Way
Sun Valley, CA 91352

REPORT REVIEW -- HAWKER PACIFIC, INC., 11310 SHERMAN WAY, SUN VALLEY, CA (FILE No. 111.0436)

Board staff have received the report "Site Investigations: Evaluation of PCE Impacts to Shallow Soils", prepared by your consultant, Geraghty & Miller, Inc., dated March 25, 1996 (received March 27, 1996). This report contains results of the latest assessment work conducted at your facility. Upon review of the subject report, previous assessment work and other information Board staff have the following comments with respect to the Well Investigation Program:

1. The subject facility has been used for maintenance of aircraft components (primarily landing gears) since 1987. Chemicals used at the site include 1,1,1-TCA, Ketone, Toluene, Turbine Oil and Industrial Oil. During our initial inspection on August 31, 1988, Board staff noted numerous potential sources of soil and ground water contamination including the Industrial Waste Clarifier, Above Ground 1,1,1-TCA Tank Area, Cooling Tower, and Chemical/Waste storage Area.

2. In December, 1988, a subsurface investigation was conducted at the subject facility consisting of drilling and sampling three boreholes to a maximum depth of 20' bgs at potential sources of liquid wastes. Laboratory analysis of the soil matrix samples detected Methylene Chloride at 16 µg/kg (at bgs) and 7 µg/kg (at 10' bgs).

3. In June, 1989, your representatives submitted the results of assessment work for soil contamination associated with a 200 gallon waste oil underground storage tank (UST) that was not performed under Board staff guidance. Laboratory analysis of soil matrix samples collected during this work detected maximum concentrations of 38,637 µg/kg TRPH at 1' bgs (36 µg/kg at 20' bgs), 7,300 µg/kg TPH-d at 5' bgs (88 µg/kg at 20' bgs) 290 µg/kg µg/kg 1,1,1-TCA at 5' bgs, 260 µg/kg TCE at 5' bgs, 550,000 µg/kg Toluene at 5' bgs, 555,000 µg/kg PCE at 5' bgs, 584 µg/kg Total Xylenes at 5' bgs and lesser levels of other VOCs. Based on the soil matrix data submitted, the contamination does not extend below 40' bgs. The sediments penetrated to a maximum drilled depth of 90' bgs were

predominantly sand and gravel. The water table is estimated to be in excess of 200' bgs.

4. In August, 1990, the waste oil UST was removed. Confirmation soil matrix samples in the bottom of the excavation pit contained maximum concentrations of 250 µg/kg TPH and 18 µg/kg PCE. Reportedly, contaminated soil excavated from the pit was backfilled without treatment into the pit after tank removal. This work was conducted under the guidance of the Los Angeles Fire Department. The site was subsequently transferred to the Regional Board.

5. During a phase of assessment conducted in the UST area in 1992, soil matrix samples were collected and analyzed from four boreholes drilled to a maximum depth of 25' bgs. Laboratory results of these samples reported maximum concentrations of 31 µg/kg PCE at 10' bgs (ND at 20' bgs).

6. Assessment conducted in the UST area in January, 1994, detected maximum concentrations of 188 ppb PCE at 6.5' bgs using a portable gas chromatograph. PCE was detected in soil vapor samples sent to a fixed laboratory at a level of 39 µg/l at 80' bgs, the maximum drilled depth.

Due to inadequate agency oversight, inappropriate sampling techniques and insufficient QA/QC information, additional soil vapor samples must be collected in the former waste oil UST area to confirm the vertical extent of VOC contamination. The work must be performed in accordance with the enclosed "REQUIREMENTS FOR ACTIVE SOIL GAS SURVEY". Also, at least two shallow soil matrix samples must be collected in the fill material in the former excavation pit and analyzed for TRPH, BTEX and VOCs to confirm that concentrations in this material does not exceed allowable limits. Three copies of a work plan for the multi-depth soil gas probe installations and shallow borings in the former excavation pit must be received by July 30, 1996. If you have any questions please contact Walter Salas at (213) 266-7542, and address all correspondence to his attention. Your cooperation in completing the required assessment work at this facility is appreciated.

ERIC NUPEN, R.G.
Senior Engineering Geologist 7531

Enclosure
cc: David Seter, USEPA Region IX, San Francisco
Dr. Lorne G. Everett, Geraghty & Miller, Inc.
Stephen J. Cullen, Geraghty & Miller, Inc.
Aaron Rosen, Attorney at Law
Norman B. Berger, Varga Berger Ledsky & Hayes

GERAGHTY
& MILLER, INC.
Environmental Services

a heidemij company

July 29, 1996
SB0042.001.001

California Environmental Protection Agency
Regional Water Quality Control Board
Los Angeles Region
101 Centre Park Drive
Monterey Park, California 91754

Attention: Mr. Walter Salas

Subject: Work Plan for Phase II Site Investigation
Hawker Pacific Inc., Facility
11310 Sherman Way
Sun Valley, California

Dear Mr. Salas:

Geraghty & Miller, Inc. (Geraghty & Miller) is submitting the following Work Plan on behalf of the Wagners & Basinger, who are the owners of the Hawker Pacific property located at 11310 Sherman Way in Sun Valley, California (the "Property"). This Work Plan was developed in response to Regional Water Quality Control Board, Los Angeles Region (Regional Board) correspondence dated June 14, 1996, in which additional investigation was requested. In that correspondence, the Regional Board provided review comments to Geraghty & Miller's March 25, 1996 report entitled Site Investigations: Evaluation of PCE Impacts to Shallow Soils. Specifically, the Regional Board requested that the following tests be completed: 1) additional soil vapor sampling in the former waste oil UST area to confirm the vertical extent of VOC contamination; and 2) two additional soil samples from the fill materials in the former excavation pit be taken. This Work Plan was prepared to satisfy those requirements.

The purpose of this Work Plan is to provide a detailed discussion of the activities planned and procedures to be followed during the Phase II Investigation. The scope of work and procedures to be used during the investigation, including sampling methods, analytical procedures, and sample handling protocols were developed in accordance with the Regional Board's June 14, 1996 correspondence, the Regional Board's Interim Site Investigation & Cleanup Guidebook dated May, 1996, and the Regional Board's Requirements for Active Soil Gas Investigation - Well Investigation Program (WIP) dated March 14, 1996.

SCOPE OF WORK

This section presents the scope of work (SOW) for conducting the Phase II investigation activities at the Property. The SOW is divided into three tasks: 1) Soil Matrix Investigation; 2) Soil Vapor Investigation; and 3) Reporting. All work at the Property will be completed in accordance with a site-specific Health & Safety Plan (HASP). Work will be performed under the supervision of a California Registered Geologist (R.G.). Additional details regarding each of these proposed activities are provided in the following sections.

Task 1 - Soil Matrix Investigation

The soil matrix investigation activities will consist of advancing two soil borings (SB-1 and SB-2) in the fill materials of the former excavation pit. The proposed boring locations are illustrated in Figure 1. Soil samples will be collected for laboratory analyses at depths of 5 feet below ground surface (ft bgs) in G-4 and at 7 ft bgs in G-5.

Discrete soil samples will be collected at the desired depth using a GeoProbe™-type push rod sampling apparatus. Soil samples will be collected at the desired intervals using a core barrel fitted with a brass sample sleeve. The sleeves will be labeled appropriately with depth intervals and a boring identifier. Borehole lithology will be logged from the soil cores and classified according to the Unified Soil Classification System (USCS) codes.

Flame ionization detector (FID) headspace monitoring of collected soil samples will also be conducted to monitor relative concentrations of volatile organic compounds (VOCs) in the sample headspace. Both soil samples will be analyzed for VOCs using EPA Methods 8010/8020 and for Total Recoverable Petroleum Hydrocarbons (TRPH) using EPA Method 418.1 by a California-certified laboratory.

Task 2 - Soil Vapor Investigation

Discrete soil vapor samples will be collected at depths of 10 and 20 ft bgs in the proposed location (VP-1) using a GeoProbe™-type push rod sampling apparatus to assess potential vapor-phase VOC concentrations at discrete depths in the unsaturated soil. The proposed location is illustrated in Figure 1. Upon reaching the desired depth with the push rod and sampling apparatus, soil vapor samples will be collected from the discretely-located soil vapor sample points and submitted to an on-site laboratory for analysis of VOCs.

At each sampling interval, the soil vapor monitoring port will be accessed and connected to a vacuum pump and activated for a time period necessary to purge the appropriate volume of soil vapor. A site-specific purge volume versus contaminant concentration test will be completed at the start of the sampling of the upper sample interval. The test will be completed to purge ambient air in the sampling system and determine optimal purge rate and volume.

Upon completing optimal purge, laboratory soil vapor samples will be collected in 3-Liter capacity, pre-cleaned, passive, stainless steel SUMMA canisters supplied by a State-certified analytical laboratory. Each canister will be outfitted with a laboratory-calibrated critical flow orifice that permits 150-200 ml/min of vapor flow. The initial vacuum and canister number will be recorded onto a soil vapor collection log sheet, in addition to the date, time, weather conditions, barometric pressure, ambient temperature, and soil vapor monitoring port designation. The SUMMA canister will be connected to each monitoring port and the valve opened. Based on a projected flow rate of approximately 150 ml/min, a time period of about 20 minutes would be required to complete soil vapor sample collection at each of the locations. Following sample collection, the canister valve will be shut off, the sampling time recorded and the residual vacuum measured using a vacuum gauge and recorded onto the field sampling form. Sampling will proceed in order of increasing depth with the shallowest depth sampled first.

Samples will be submitted to an on-site State-Certified mobile analytical laboratory under full chain-of-custody and analyzed for non-polar VOCs (full scan) using Method TO-14. Detection limits using this method are 0.5 parts per billion by volume (ppbV) per analyte.

Since laboratory analysis of the soil vapor samples is being conducted on site and results will be available to the field geologist, additional soil vapor samples may be collected at depths of greater than 20 ft bgs, should concentrations greater than the predetermined cleanup level(s) be observed in the 20 ft interval. In this case, the rationale will be presented along with the results in the final report.

Task 3 - Reporting

A draft Phase II Investigation Report will be prepared following the conclusion of the Phase II investigation field program. The report will include data collected during the investigation, procedures followed during the program, critical evaluation of the chemical and physical data collected, and an evaluation of the need for any additional data. Analytical results will be compared to Soil Screening Levels (SSLs) as presented in the Regional Board's Interim Site Investigation & Cleanup Guidebook dated May, 1996 and Geraghty & Miller's March 25, 1996 report entitled Site Investigations: Evaluation of PCE Impacts to Shallow Soils.

SCHEDULE OF IMPLEMENTATION

Wagners & Basinger will initiate Phase II field activities within 30 days of receipt of written approval of this Work Plan. Upon completion of the Phase II field activities, a draft Report will be prepared and submitted to the Regional Board within 60 days of receipt of laboratory data collected during the investigation. Wagners & Basinger will submit a revised final Report within 45 days after receipt of any Regional Board comments on the draft Report.

CLOSING

Should you have any questions or require any additional clarification on any aspect of this Work Plan, please contact Dr. Stephen Cullen at (805) 687-7559. Written comments should be addressed to Dr. Stephen J. Cullen and Aaron Rosen at 9606 So. Santa Monica Boulevard, Suite 200, Beverly Hills, CA 90210.

Respectfully submitted,

GERAGHTY & MILLER, INC.

Stephen J. Cullen, Ph.D.
Hydrologist/Soil Scientist

Barry Keller, Ph.D.
Registered Geologist, No. 4460
Certified Hydrogeologist No. 370

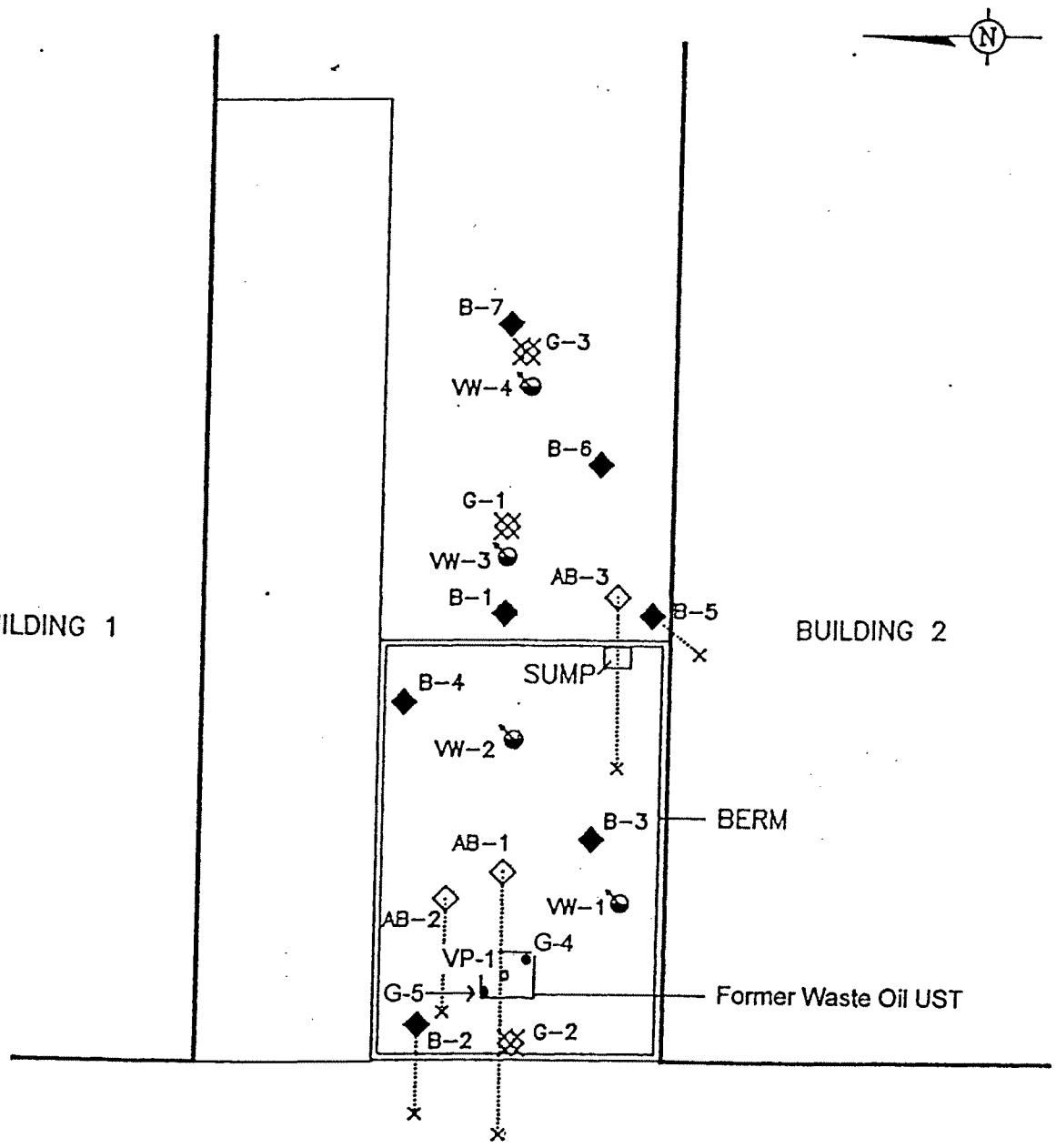
Lorne G. Everett, Ph.D.
Chief Research Hydrologist and Vice President

attachment

cc: Aaron Rosen, Esq.

E:\ROSEN\SUPP_WP.DOC

FIGURES



LEGEND

- ◇ ALT BORINGS
- × BOTTOM LOCATION
- ◆ LAW/CRANDALL BORINGS
- × BOTTOM LOCATION
- ⊠ G&M BORINGS (JANUARY 1994)
- VAPOR EXTRACTION WELLS

G-4 ● Proposed Soil Boring Location and Designation

VP-1 ○ Proposed Soil Vapor Sampling Location and Designation

GERAGHTY & MILLER, INC.
Environmental Services

0 10 FT

PROPOSED AND EXISTING SOIL AND SOIL VAPOR SAMPLING LOCATIONS

WASTE OIL TANK AREA

HAWKER PACIFIC INC.
11310 SHERMAN WAY
SUN VALLEY, CA

FIGURE 1

Addendum to Work Plan for Phase II Investigation
Hawker Pacific, Inc., Facility
11310 Sherman Way, Sun Valley, CA
August 30, 1996

I. Field Equipment Decontamination

The American Society for Testing and Materials (ASTM) D 5088-90 procedures for decontamination of field equipment will be utilized on all field equipment each time prior to entering the boring. This standard practice covers both equipment that comes in contact with soil samples and equipment that does not come in contact with soil samples.

Sample Contacting Equipment

The following equipment decontamination procedures, which follow the ASTM standard practice, will be used for decontaminating all sample contacting equipment for this investigation:

1. Remove gross contamination from equipment.
2. Disassemble equipment.
3. Wash and remove particles and surface film from parts with a non-phosphate detergent solution and a brush made of inert material.
4. Rinse parts thoroughly with control water.
5. Rinse parts with pesticide or higher grade methanol.
6. Rinse parts thoroughly with reagent-grade, organic-free deionized water.
7. Allow equipment to air dry prior to next use.
8. Wrap equipment with plastic wrap for transport or temporary storage, if required.

Soil contacting equipment will be contaminated prior to collecting each sample.

Nonsample Contact Equipment

The following equipment decontamination procedures, which follow the ASTM standard practice, will be used for decontaminating all sample contacting equipment for this investigation:

1. Remove gross contamination from equipment.
2. Disassemble equipment as appropriate.
3. Wash and remove particles and surface film from parts with a non-phosphate detergent solution and a brush mad of inert material.
4. Rinse parts thoroughly with control water.
5. Wrap equipment with plastic wrap for transport or temporary storage, if required.

All noncontact soil sampling equipment and hand tools used to remove soil from augering equipment, examine soils or conduct field testing will be decontaminated each time before entering the boring or initiating soil examination/field testing. Hand tools used to transfer soils to drums will be decontaminated between borings.

II. Waste Handling

All wastes generated from decontamination will be transferred to 5-gallon buckets for storage, pending receipt of chemical analyses of soils from the lab, and for subsequent handling and disposal as appropriate.

III. Field Quality Control Samples

Soil sampling will be conducted in accordance with Task 1 of the workplan dated July 29, 1996. All soil sample collection apparatus will be fully decontaminated in accordance with Section 3 of this plan each time before it enters the hole. Quality control samples will be collected to document the representativeness, accuracy and precision of sampling and will include the following samples:

- **Equipment Blanks**: Equipment rinsate blanks will be collected to measure the error associated with equipment decontamination. Equipment rinsate blanks will be prepared by pouring reagent-grade, organic-free deionized water through the decontaminated split-core sampler and core tip with liners inserted under field conditions and letting it fall into clean bottles. Analysis of these blanks quantifies potential contamination from sample liners and decontaminated sampling equipment, cross-contamination from previously collected samples, and contamination from conditions during sampling (e.g., airborne contaminants that are not from the waste being sampled). Equipment blanks will be collected and analyzed at a frequency of one sample per ten samples collected or at least one sample per day per type of equipment used.

- **Field Blanks**: Field blanks will be collected to determine if any contaminants present in the area may have an effect on sample integrity. Field blanks are samples of reagent-grade, organic-free deionized water placed in sample bottles by the laboratory that are opened in the field during sampling. Field blanks will be left open in close proximity to soil sampling activities and closed when sample packaging has been completed. Analysis of these blanks quantifies error associated with the field environment (e.g., airborne contaminants that are not from the soil being sampled). Field blanks will be collected and analyzed at a frequency of one sample per twenty samples collected or at least one sample per day.

- **Trip Blanks**: Trip blanks will be collected to evaluate contamination of samples during handling and shipment. Trip blanks are samples of reagent-grade, organic-free deionized water placed in sample bottles by the laboratory and handled throughout the field activities in a manner similar to that of samples collected in the field. Trip blanks are not opened in the field. Analysis of trip blanks quantifies error associated with shipment, containers and laboratory analysis. Trip blanks will be collected and analyzed at a frequency of one sample per sample cooler.

GERAGHTY & MILLER
TASK-SPECIFIC HEALTH AND SAFETY PLAN

I. EMERGENCY PLANNING

The SSO will coordinate the entry and exit of response personnel during an emergency.

NAME	PHONE NUMBERS
Local Police	911
Local Ambulance	911 and (213) 485-6185
Local Fire Department	911 and (213) 485-6185
Local Hospital	(818) 753-2373
Local Airport	(818) 840-8847
Poison Control	(800) 777-6476 (213) 222-3212
National Response Center (All Spills)	(800) 424-8802
U.S. Coast Guard (Spills to Water)	(804) 441-3516
Site Contact: Mr. David Lokken	(213) 875-2930
Geraghty & Miller, Inc. Office	(805) 687-7559

After immediate notifications are made, also notify:

NAME	PHONE NUMBERS
Regional Manager - Lorrie Council	(818) 332-8010
Project Manager - Steve Cullen	(805) 687-7559
Director, Health & Safety - Kevin Ormsby	(813) 961-1921
Company Physician: EMR - Dr. David Barnes	(800) 229-3674
Subcontractor's Office: Company: Environmental Support Technologies Name: Kirk Thomson	(714) 457-9664

HOSPITAL ROUTE DIRECTIONS
MEDICAL CENTER OF NORTH HOLLYWOOD, map attached

West on Sherman Way approximately two miles; left (south) on Coldwater Canyon Avenue approximately three miles; left (east) on Riverside Drive, immediate left into Hospital. Medical Center of North Hollywood, 12629 Riverside Drive, North Hollywood, California 91607.

HOSPITAL ROUTE DIRECTIONS
MEDICAL CENTER OF NORTH HOLLYWOOD

West on Sherman Way approximately two miles; left (south) on Coldwater Canyon Avenue approximately three miles; left (east) on Riverside Drive, immediate left into Hospital. Medical Center of North Hollywood, 12629 Riverside Drive, North Hollywood, California 91607.

ALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
)S ANGELES REGION
CENTRE PLAZA DRIVE
ONTEREY PARK, CA 91754-2156
13) 266-7500
: (213) 266-7600

August 12, 1996

Dr. Stephen Cullen
Aaron Rosen
9606 South Santa Monica Boulevard
Suite 200
Beverly Hills, CA 90210

WORK PLAN - HAWKER PACIFIC, INC., 11310 SHERMAN WAY, SUN VALLEY, CA (FILE No. 111.0436)

Board staff have received the "Work Plan for Phase II Site Investigation", prepared by your consultant, Geraghty & Miller, Inc., dated July 19, 1996 (received on July 30, 1996). The subject work plan proposes supplemental assessment and is in general compliance with requirements in our letter of June 14, 1996. Board staff have no objection to implementation of the proposed assessment work with the following conditions and comments:

1. The subject work plan proposes to advance two boreholes to a maximum depth of 7' feet below ground surface (bgs). Soil matrix samples are proposed at 5' and 7' bgs. The soil matrix samples will be analyzed for Volatile Organic Compounds and BTEX in accordance with EPA Method 8010/8020, and Total Petroleum Hydrocarbons (TRPHs) in accordance with EPA Method 418.1 at a state certified laboratory.

2. Soil gas samples are also proposed at 10' and 20' bgs during the current phase of assessment to confirm the vertical extent of soil contamination. The work plan proposes collection of the soil vapor samples in 3-Liter stainless steel SUMMA canisters and analysis for VOCs using Method TO-14. Considering that only two samples are being collected, Board staff believe that it would be more cost effective to have the SUMMA canisters submitted to a fixed State Certified Stationary Laboratory for a maximum 24 hour holding time instead of the mobile laboratory. The analysis must be in accordance with our Requirements for Active Soil Gas Investigation, which do not include the usage of Method TO-14. Should you decide to go ahead and utilize the a mobile lab, you will still be required to use our guidelines, which do not allow the use of method OT-14, using a laboratory certified by the Regional Board for on-site VOC analysis soil gas analysis.

3. Your consultant has proposed to submit only a draft Phase II Investigation Report initially, and then submit a revised final Report incorporating Board staff comments on the draft Report. Board staff will only review the final version of the report.

Three copies of the final report containing results of the Phase II Site Investigation are due within **30 days** of receipt of the laboratory reports. Field work must commence by **September 30, 1996**. Board staff must be notified at least **72 hours** in advance of field work. If you have any questions, please contact Walter Salas at (213) 266-7542, and address all correspondence to his attention.

ERIC NUPEN, R.G.
Senior Engineering Geologist

cc: David Seter, USEPA Region IX, San Francisco
Dr. Lorne G. Everett, Geraghty & Miller, Inc.
Stephen J. Cullen, Geraghty & Miller, Inc.
David L. Lokken, Hawker Pacific Incorporated

L-8

STATE OF CALIFORNIA—ENVIRONMENTAL PROTECTION AGENCY
PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
FAX (213) 266-7600

Steve Cullen
G+M
(805) 687-0838

December 13, 1996

Aaron Rosen
9606 South Santa Monica Boulevard
Suite 200
Beverly Hills, CA 90210

NO FURTHER REQUIREMENTS - HAWKER PACIFIC, INC., 11310 SHERMAN WAY, SUN VALLEY, CA (FILE No. 111.0436)

Board staff have received the "Phase II Site Investigation Report" prepared by your consultant, Geraghty & Miller, Inc., dated November 18, 1996. The subject report presents results of recent assessment work at this facility and is in general accordance with requirements in our letter of June 14, 1996. Upon review of the subject submission and other information contained in our files, we have the following comments with respect to the Well Investigation Program:

1. During the latest phase of assessment, two soil matrix samples were collected from excavation fill material and two soil vapor samples were collected and sampled in the former waste oil UST. The purpose of collecting the two soil matrix samples was to confirm the condition of the fill material which was reportedly the untreated VOC and TRPH contaminated soil that was excavated. The purpose of collecting the soil vapor samples was to determine the vertical extent of VOC soil contamination.

2. Laboratory analysis of the soil matrix samples detected concentrations of TRPH up to 2,000 mg/kg at 5' bgs (170 mg/kg at 7' bgs) and PCE up to 75 µg/kg at 7' bgs. Analysis of the soil vapor samples detected concentrations of PCE up to 102 µg/l at 10' bgs (ND at 20' bgs). Ground water is estimated to be at approximately 240' bgs in the site area.

Based on the subject report and previous submissions, we have no further requirements with respect to the Well Investigation Program for the subject site. The remaining soil contamination detected at the site does not represent a significant threat to ground water quality and therefore cleanup is not warranted.

The jurisdiction requirements of other agencies, such as the U.S. Environmental Protection Agency (USEPA), are not affected by the Board's "no further requirement" determination. Such agencies may choose to make their own determination concerning the site.

If you have any questions, please contact Walter Salas at (213) 266-7542 and address all correspondence to his attention.

ERIC NUPEN, R.G.
Senior Engineering Geologist

cc: David Seter, USEPA Region IX, San Francisco
Duane F. James, USEPA, Region IX, San Francisco
Mal Blevins, ULARA Watermaster
Dr. Lorne G. Everett, Geraghty & Miller, Inc.
Stephen J. Cullern Geraghty & Miller, Inc.
David L. Lokken Hawker Pacific Incorporated

Exhibit M

EXHIBIT M

Request # 31, 32 and 33 to Basinger Trusts and # 24 and 25 to Wagner Trusts:

Provide copies of any correspondence between the various Basinger and Wagner trusts and the Basingers and Wagners, as individuals, and local, state, or federal authorities concerning the use, handling, disposal, or remediation of hazardous substances at the Facility, including but not limited to any correspondence concerning any of the releases identified in response to the previous question.

BW Trusts' Response:

The BW Trusts are passive owners of the real property on which Hawker Pacific Aerospace, its predecessors, and previous tenants have operated from 1966 to the present. The BW Trusts have limited knowledge regarding Hawker Pacific Aerospace's or such other tenants' operations on the parcel owned by the BW Trusts (or on the adjacent parcel that is also operated by Hawker Pacific Aerospace and is owned by Industrial Bowling Corp.). However, the BW Trusts expect that information responsive to the above requests will be submitted by Hawker Pacific Aerospace in response to EPA's information request to Hawker Pacific Aerospace.

The correspondence and reports attached in response to Request # 30 to the Basinger Trusts and # 23 to the Wagner Trusts (*see* Exhibit L) contain information responsive to the above requests. The following additional document, obtained by the BW Trusts in 2004 from Hawker Pacific Aerospace, is attached in response to the above requests:

1. 08/20/01 RWQCB Memorandum to File from Mohammed Zaidi, Inspection Report – Hawker Pacific Aerospace, 11240 Sherman Way, Sun Valley, California 91352 (File No. 104.0306).

M-1

California Regional Water Quality Control Board

Los Angeles Region

(50 Years Serving Coastal Los Angeles and Ventura Counties)

Winston H. Hickox
Secretary for Environmental Protection

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640
Internet Address: http://www.swrcb.ca.gov/rwqcb4

Gray Davis
Governor

HAWKER PACIFIC
-PRESEDENT/CEO -
DICK FORTNER

TO: File

FROM: Mohammad Zaidi

DATE: August 20, 2001

SUBJECT: INSPECTION REPORT – HAWKER PACIFIC AEROSPACE, 11240 SHERMAN WAY, SUN VALLEY, CALIFORNIA, 91352 (FILE NO. 104.0306)

FACILITY CONTACT NAMES AND PHONE NUMBERS: Dave Clark, Director Engineering/QA (818) 765-6201 Ext. 211, Brian S. Carr, Managing Director, (818) 765-6201 Ext. 206

Purpose:

The purpose of the inspection was to document site conditions and gather information regarding various manufacturing processes and the associated chemicals/substances used and stored at the site. The inspection focused on both current and previous chromium and heavy metal usage at the site, quantities of these substances used and stored onsite, and their subsequent potential for impacting/contributing to such substances in soil and groundwater beneath the site.

Background:

Hawker Pacific Aerospace repairs and overhauls aircraft landing gears and hydraulic components. They have been in business at this location since 1958 (58 years). The company has a number of plating and anodizing tanks and has been involved in hard **Chrome, Nickle, and Cadmium** plating operations at this location since 1968. Although the type of business remained the same since 1968, the business owners changed from **Steller Hydraulics** from 1968 to 1978, **Aviation Hydraulics** from 1978 to 1980, **Parker** (PBS) from 1980 to 1984, **Flight Access Services** from 1984 to 1987, and Hawker Pacific from 1987 to present. Current property owners as indiated by Mr. Carr in the company's response to our CUQ are listed in the Table 1 below.

At the direction of this Regional Board, the site was investigated for petroleum hydrocarbon contamination of the soil. This investigation was performed by the company's consultant, Law Crandall. Their report dated January 11, 1990, covered two onsite private sewage disposal systems and an industrial waste clarifier. The Superfund investigative findings and those of an assessment of petroleum and chlorinated hydrocarbons performed by Geraghty & Miller (March 25, 1996) resulted in a "No Further Action" letter from this Regional Board. After reviewing the *Phase II Site Investigation Report* submitted by Geraghty & Miller in November 1996, Regional Board issued a letter that stated that "we have no further requirements with respect to the Well Investigation Program for the subject site" located between Building 1 and 2 (at the subject property).

The chemicals stored and used were listed in the CUQ as: Nital Etch solution No. 1 (2 to 5 % Nitric acid solution), 2 to 5 % Hydrochloric acid solution (Nital Etch solution No. 2), Nickle plating solution SNR

PROPERTY OWNERS	PROPERTY ADDRESS
Aaron Rosen Attorney for Wagner & Basinger	11310 Sherman Way, Buildings 1, 2, & 3
The Basinger Marital Trust C, 2246	11310 Sherman Way, Buildings 1, 2, & 3
Wagner Residual Trust A, 33 La Cerra Drive, Sunrise Country Club, Rancho Mirage, 92270	11310 Sherman Way, Buildings 1, 2, & 3
Industrial Centers Corp., 1819 Olive Avenue, Burbank, CA 91502	11258 Sherman Way - Bldg. 4, 11260-1/2 Sherman Way - Bldg. 5
Industrial Centers Corp., 1819 Olive Avenue, Burbank, CA 91502	11260 Sherman Way - Bldg. 6, 11252 Sherman Way - Bldg. 7
Industrial Centers Corp., 1819 Olive Avenue, Burbank, CA 91502	11240 Sherman Way - Bldg. 8

24, Nital Etch solution, Chromate conversion coating (Iridite solution), Cadmium plating solution, Chromic acid solution (Chromic plating solution), Aluminum Etch solution, Aluminum Deoxidizer, Anode cleaner, Chrome strip solution, alkaline solution, Beryllium Copper materials and lead compounds. The CUQ also stated that the facility had an industrial waste permit until November 30, 1994.

Information on waste streams and their annual and monthly quantities provided by Mr. Carr in our CUQ are listed in Table 2 below.

Table - 2 Responses in CUQ to Waste Management Questions

Waste- stream	Yearly totals (Pounds)	Monthly totals (Pounds)
Oil and water	44,787	3732
Paint and related liquid	12,050	1,004
Liquid Chromic acid	61,750	5,145
Liquid alkaline waste	108,800	9,066
Production debris	47,100	3,925
Acids w/ metals	18,000	1,500
Cyanide carbonate	2,000	166
Waste aerosols	300	25
Used Sulfamaic acid	10,000	833

Current Activities and Observations:

Regional Board staff member Mr. Zaidi inspected the facility on August 3, 2001 in presence of the facility staff including Mr. Dave Clark and Mr. Brian Carr. As shown on a facility map requested by Mr. Zaidi, and provided by Mr. Clark, two of the nine buildings, namely Building 6 and Building 2, have significant importance with regard to storage and use of Chromium chemicals. The northern portion of Building 6 is used for storage of acids such as Chromic acid flakes, nitric acid, etc., caustic materials, oils, waste liquids and sludge. Chromium chemicals are most significantly used in Building 2, called the Plating Building. The northern portion of Building 2 consists of a NITAL area containing six tanks; Sulfamaic Nickle transfer tank, and some painted (with yellowish green paint) and unpainted plated parts. The six tanks in the NITAL

area contain an iridite, a nitric acid, a hydrochloric acid, a caustic solution, and two rinse water tanks. There is a Chrome Anode storage area located southeast of the NITAL area. The plating tanks were located in the southern portion of Building 2. The plating area tanks from south to north included: a rinse water tank (which was previously an Iridite tank), a caustic solution tank, a Nickle plating tank, a Cadmium plating tank, four Chromium plating tanks, and a previous clarifier. The vapors from the Chromium plating tanks are routed through the overhead ducts to dry mesh pad scrubbers. The plating tank area is underlain by 5.5 feet deep concrete-lined sump that is covered by a metal grate at the surface grade. The plating tanks area extends 5.5 feet below grade to the bottom of the sump.

The Chromium plating tank locations have reportedly not been changed since 1968. The eastern end of the previous clarifier that stored industrial wastewater remained connected to the City sewer line until November 30, 1994 when it was capped and cemented. The process water was treated in-house with metabisulfite, pH adjusted for a few years and then treated by an ion exchange system from 1990 to 1992. Thereafter, the treated wastewater was piped to a vacuum evaporation unit for further treatment and recycling. As stated by Mr. Clark, the vacuum evaporation system can treat an influent with 4000 µmhos to 100 µmhos. The treated water is reused as rinse water in the plating area. The treatment system is reportedly a closed-loop, zero-discharge system.

Mr. Clark stated that highly concentrated waste liquids and sludge are shipped to U.S. Filter Recovery Services, Inc. in California.

The facility maintains a current air emission permit from SCAQMD and an NPDES permit for storm water discharges from this Regional Board. The facility does not have any permits from California Department of Toxic Substance Control.

Previous Chromium-Related Investigations:

According to Mr. Clark, no soil or groundwater investigations for heavy metals have been conducted at the facility in the past. A summary of previous subsurface investigations conducted for petroleum and chlorinated hydrocarbons is presented in the background section above.

Conclusion:

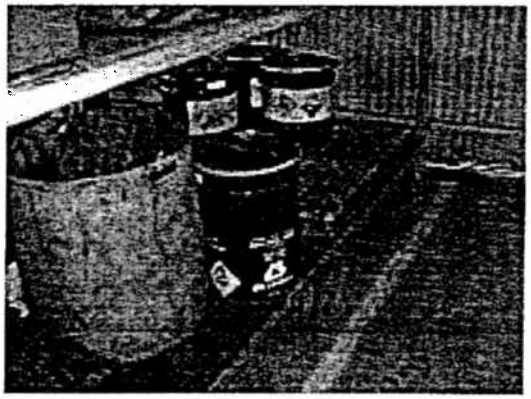
1. The length of the plating and anodizing operations (23 years) conducted and the historical use of chromium chemicals at this facility qualifies it for further assessment as a possible contributor of chromium/heavy metals to the underlying soil and /groundwater.

Recommendations:

Because current and past activities may have possibly contributed chromium and other heavy metals in soil and groundwater beneath the site, it is recommended that the Regional Board require an additional subsurface investigation at the site. The assessment should include soil and groundwater analyses for Title 22 heavy metals targeting the hazardous materials/waste storage areas, the locations of tanks and previous clarifier in the Plating Building. Also, the paint areas, and the treatment areas, and the previous outfalls to the sewer lines should be assessed.

Photographs:

HWKP-1 Hawker Pacific Aerospace office building is located at 11310 Sherman Way, Sun Valley, California 91352.



HWKP-2 Drums of acids including Chromic acid flakes are seen in the chemical storage area of Building 6 (11260 Sherman way).

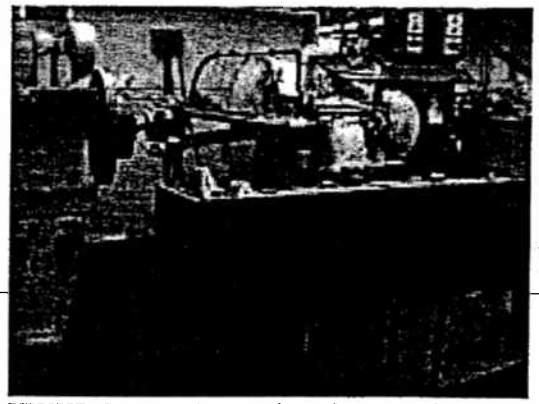
HWKP-3 Portion of the Acid storage Area west of that shown in HWKP-1.

HWKP-4 Caustic materials storage area west of the acid storage area shown in HWKP-3.

HWKP-5 A broader view of the acid storage area as shown in HWKP-3.

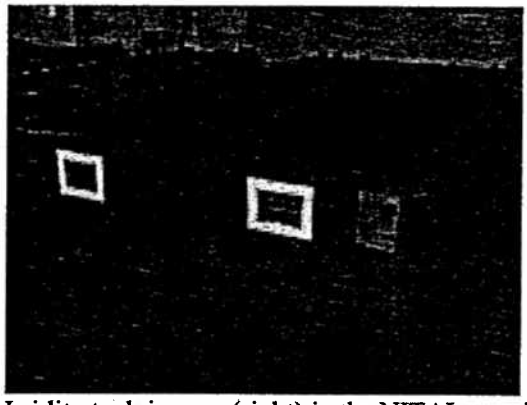
HWKP-6 Blue drums containing waste liquids and sludge are stored east of the acid materials storage.

HWKP-7 Some aircraft parts after plating.



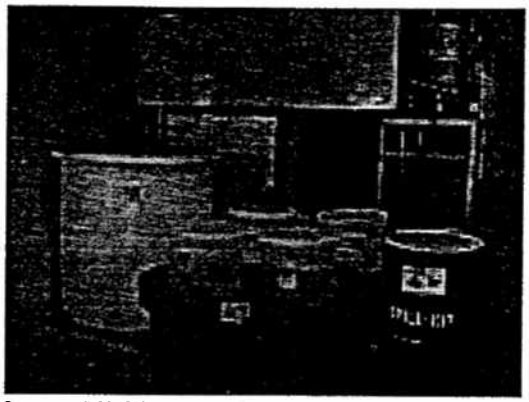
HWKP-8 Some aircraft parts after grinding.

HWKP-9 Six tanks containing (from left to right) nitric acid, rinse water, hydrochloric acid, caustic solution, rinse water, and Iridite are located in the NITAL Area in the northern portion of Building 2.



HWKP-10 Irridite tank is seen (right) in the NITAL area in Building 2.

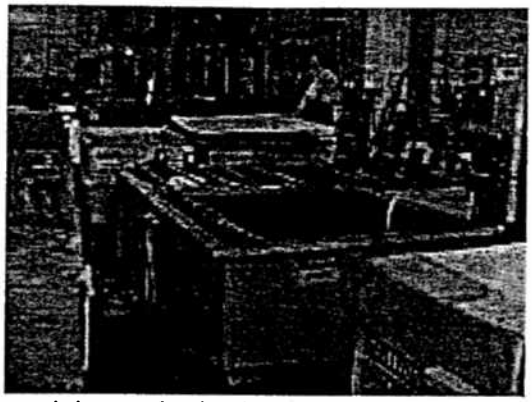
HWK-11 Some aircraft parts after plating were seen in the NITAL area in Building 2. Yellowish green paint used on the parts and staining the floor in the NITAL area contains chromates.



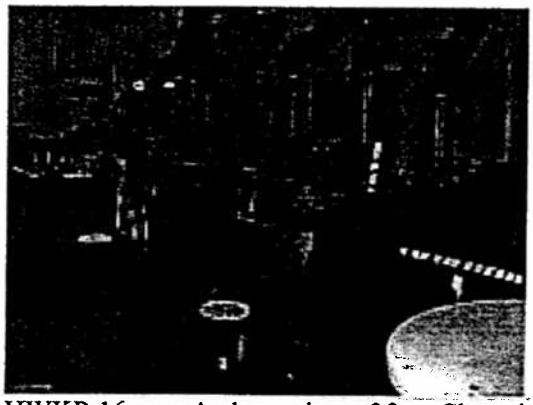
HWKP-12 Sulfomate Nickle Transfer tank located northwest of the NITAL area in Building 2.

HWKP-13 Chrome Anode Storage area located southeast of NITAL area in Building 2.

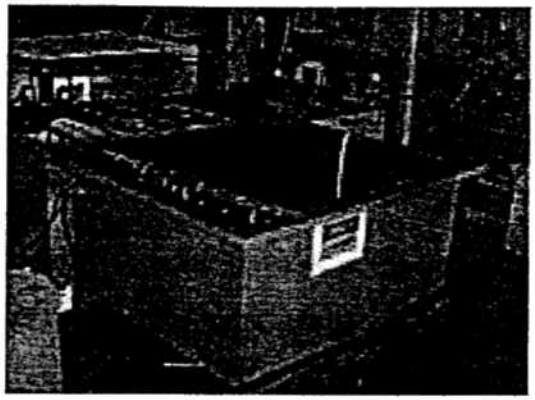
HWKP-14 Southern portion of the Building 2 is the Plating area. Eastern half of the plating area contains the plating tanks. Two tanks, one of caustic solution (left) and one of currently rinse water (right) but previously Irridite are seen in the southern portion of the Plating area.



HWKP-15 Remaining tanks in the Plating area are seen (looking northward) along the eastern portion of the Building 2. The two tanks close to the observer (whitish color) are used for Cadmium and Nickel plating, and the remaining four distant (bluish dark grey connected with overhead ducts for exhaust of vapors) tanks are for Chromium plating. The Plating area tanks extend 5.5 feet below ground surface to the bottom of a concrete-lined sump (covered by grate). Chromium tank locations have reportedly not changed since 1968. There was little liquid in the sump at the time of inspection. At the northern end of the Plating tank area (at the location of gentleman with the white shirt), a metabisulfite treatment unit exists which was previously a clarifier connected to the City sewer line until 10 years ago. The Sewer connection was capped and cemented then, and since the process water has been treated with an ion exchange unit from 1990 and 1992, and thereafter piped to vacuum evaporation unit for further treatment and recycling. The treated water is sent back to the plating area to be used as rinse water.

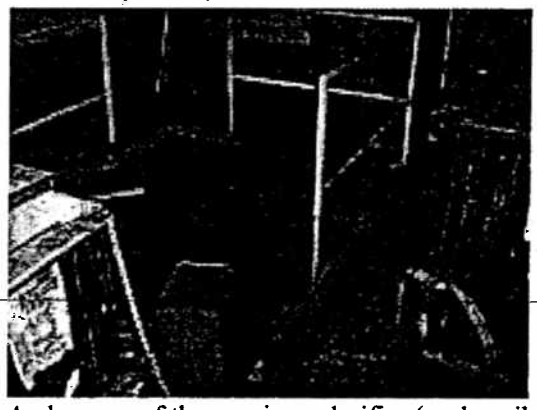


HWKP-16 A closer view of four Chromium plating tanks described in HWKP-15.

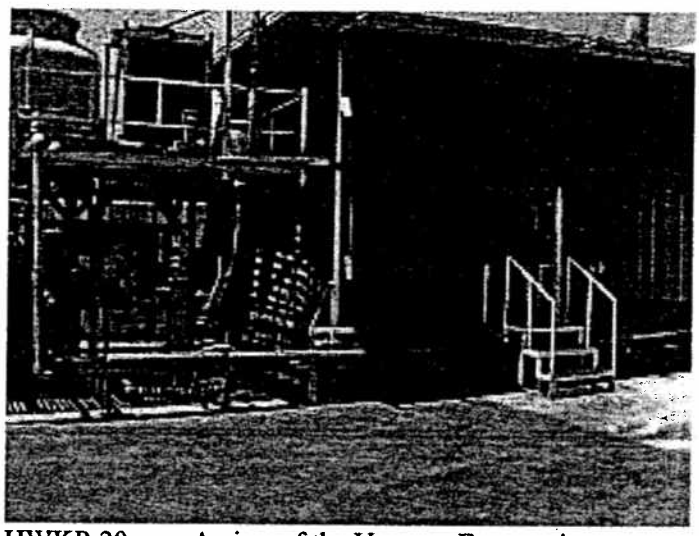


HWKP-17 A close view of two sulfonate Nickel plating tanks as described in HWKP-15. The grated cover of the sump around the tanks shows greenish staining.

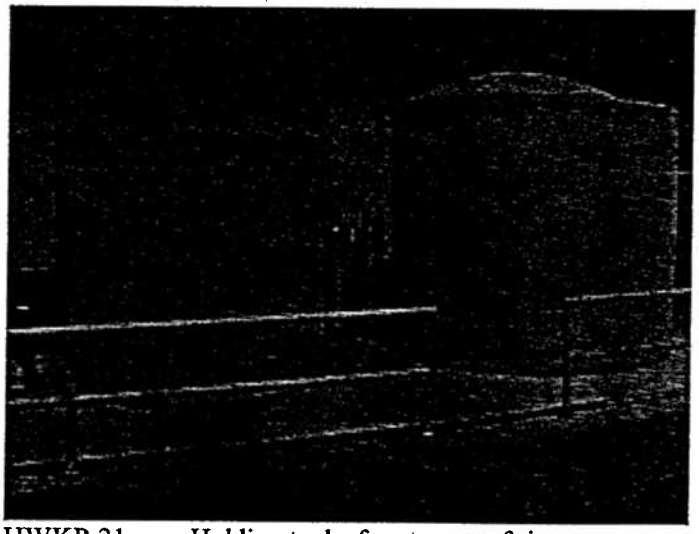
HWKP-18 View of northernmost Chromium tank (bluish dark grey) and the location of the previous clarifier (further north of the tank) are seen the Plating area in Building 2.



HWKP-19 A close-up of the previous clarifier (as described in HWKP-18) and its eastern wall where prior sewer connection existed. Observe the yellowish green staining in the area.



HWKP-20 A view of the Vacuum Evaporation System for treating process and rinse water located south of Building 2.



HWKP-21 Holding tanks for storage of rinse water before and after treatment by vacuum evaporation.

Exhibit N

EXHIBIT N

Request # 34, 35 and 36 to Basinger Trusts and # 26 and 27 to Wagner Trusts:

Provide a list of any hazardous substances that the various Basinger and Wagner trusts and the Basingers and Wagners, as individuals, knew, at the time they purchased the Facility, had been used or disposed of at the Facility.

BW Trusts' Response:

The real property was purchased in May of 1966 by the Basingers and Wagners, as individuals, and none of them had any knowledge of any use or disposal of hazardous substances on the property at that time. It should be noted that such purchase pre-dated by over 14 years the passage of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, which defined "hazardous substances."

Exhibit O

EXHIBIT O

Request # 37, 38 and 39 to Basinger Trusts and # 28 and 29 to Wagner Trusts:

Describe what the various Basinger and Wagner trusts and the Basingers and Wagners, as individuals, knew about any business operations at the Facility at the time they purchased the Facility.

BW Trusts' Response:

The real property was purchased in May of 1966 by the Basingers and Wagners, as individuals. The seller was Mustang Motor Products Corporation.